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M 71

A Clinical Lecture
ON
ACUTE INFECTIVE ARTHRITIS.

DELIVERED AT GUY'S HOSPITAL.
BY
F. J. STEWARD, M.S., F.R.C.S.,
SURGEON TO THE HOSPITAL.

ON June 16th last, in consultation with Dr. Montgomery of Bromley, I saw a little girl, aged 4, with a swollen left knee.

The history was that the child had always been healthy and robust, but just recently had not seemed quite herself, also she had been bothered with "heat spots," some of which had been scratched and had become pustular. A week previously she complained that her knee hurt her when she was being put to bed. The next morning the knee was more painful. Dr. Montgomery saw her and found the knee a little swollen and slightly tender, but she moved it freely. The temperature was 100° F. No other joints were affected. A splint was applied and small doses of sodium salicylate ordered. During the succeeding days the knee swelled more and became more painful, the temperature rose to 100° or 101°, her general condition was not so good, and sleep was much disturbed by pain.

When I saw her, on the seventh day, she was looking ill and tired. The knee was tense and obviously contained fluid. It was tender, but not extremely so, and, moreover, the thigh was distinctly swollen. There was no swelling behind the knee, and no tenderness on pressure over femur or tibia. Attempts at moving the knee obviously caused pain.

Here, then, was a child with a single swollen, tender, and painful joint associated with pyrexia and general illness, and becoming progressively worse. These are the signs and symptoms of acute arthritis, which in this case was clearly not rheumatic, as no other joints were affected, and the administration of salicylates had produced no improvement. It was therefore probably due to a pyogenic infection.

Now let me remind you of the ways in which a joint may become infected. They may be arranged conveniently in four groups:

1. *From the exterior*, due to accidental and gunshot wounds.
2. *By spread from neighbouring parts*, especially in cases of acute infection of one of the bones forming the joint.
3. *By metastasis* from an infective process in some other part of the body. In one case I shall mention later there was an infected graze over the knee, in another the source was probably a septic tonsil.
4. *In general blood infection.* Here infection of one or more joints is, of course, a frequent occurrence.

Now this child had no wound of the joint, and there was no evidence of infection of either of the bones or of any other part near the joint. There was therefore no reason to suspect a spread of infection to the joint from the neighbouring parts, and there was no evidence of a general blood infection. The case, therefore, did not belong to Group 1, 2, or 4. There were, however, the spots that had been scratched, which constituted a very possible source for a metastatic infection. I therefore placed the case in Group 3.

In such circumstances clearly the next step was to confirm the diagnosis by means of the exploring syringe. This I advised, but as it was desired that Dr. Still should see the child, there was a delay of a few hours. Then, under an anaesthetic, I drew off a syringeful of thick yellow pus.

When a joint becomes infected by pyogenic organisms, the brunt of the attack is borne in the first instance by the synovial membrane, which puts up for a time a very stout resistance. This primary stage in the process is of the very first importance, for, while it lasts, suitable treatment usually results in complete recovery.

After a while, however, the infection spreads to the other structures forming the joint, and also to the parts beyond the joint, so that cartilage and ligaments are destroyed, and the joint becomes converted into an abscess cavity. Further abscesses form outside the joint and spread in various directions. If, as the result of treatment after this stage has been reached, the patient survives, the best result that can be hoped for will be a joint more or less completely ankylosed, and very possibly dislocated, owing to destruction of ligaments.

In the case we are considering, then, much depended upon whether the resistance of the synovial membrane had been so far equal to the occasion or not, and it was necessary that such treatment should be adopted as would aim at supporting that resistance in every way possible.

I want particularly to lay stress upon this very remarkable local characteristic of the synovial membrane of a joint which enables it to deal with infection probably even more efficiently than the peritoneum. War experience emphasized this, for results clearly show that the best way to treat a joint infected by a bullet or piece of shell or clothing is to remove the foreign body, cleanse the joint so far as possible, close the wound, and let the synovial membrane do the rest. In a large majority of the cases treated in this way a perfect cure resulted.

Now the synovial membrane may be assisted in the exercise of its functions by treatment, that is to say:

1. By letting out the pus. By so doing the blood supply to the synovial membrane, which must be greatly interfered with by the direct pressure of the pus, will be restored, in addition to getting rid of the local and general poison.

2. By keeping the limb at rest by the application of a suitable splint with extension. The extension is very necessary in order to overcome the pain and so render the patient comfortable and able to rest. Without it the muscles tend to spasm, which results in pressure between the inflamed and painful joint surfaces, and also in those sudden terrible pains which occur just as the patient falls asleep and the contracted muscles relax. In the knee-joint the best appliance is a Thomas knee splint which is suspended in a cradle, extension being obtained by means of a weight in the ordinary way.

3. By the injection of antiseptics into the joint. The necessity for this is by no means certain, and, although it has been held to be of great service by some surgeons, its value must be, to a large extent, problematical. The substances most favoured are a 2 per cent. solution of formalin in glycerin, the use of which was strongly advocated by Murphy, and ether, which has also been largely used, especially during the war.

But, in order that this treatment may have a chance to succeed, it must be applied in good time, and before the barrier imposed by the synovial membrane has been seriously broken through, otherwise the results are likely to be disastrous.

This implies a correct diagnosis at the earliest possible moment, and, to this end, I wish to insist upon the extreme importance of the use of the exploring syringe without delay, in order to clinch the diagnosis whenever you have occasion to even suspect that a joint is infected. By this means, and this means only, will the best results be obtained.

I treated the case we are considering on these lines. An incision was made on the inner side of the patella and a large quantity of thick pus evacuated. The joint was then thoroughly washed out with warm mercury biniodide solution of a strength of 1 in 4,000. It was noted that the synovial membrane was quite pallid when first seen while the pus was being evacuated, but very quickly became intensely engorged with blood, showing, as I have mentioned, that the intra-articular pressure had interfered with the free supply of blood to the part. The capsule of the joint was then closed with catgut sutures, the skin wound sutured, and dressings and splint applied.

During the next two days the child was markedly better, the temperature was only slightly above the normal, she took food well, and made no complaint of pain. The bacteriological report upon the pus was that a pure culture of *Staphylococcus aureus* had been grown from it.

When I saw the child again, on the third day, the joint was less tender and the thigh less swollen, but as there was some fluid in the joint I explored it. The syringe, however, only withdrew a small quantity of clear fluid, slightly blood-stained, which was very remarkable in view of the condition only three days before; it showed how well the synovial membrane was doing its work. Nevertheless, in order that we should feel that we had done everything that could be done, whatever happened later, I then injected into the joint 2 c.cm. of 2 per cent. formalin in glycerin.

Subsequent progress was perfectly satisfactory, except that two small stitch abscesses formed, each accompanied by a slight degree of pyrexia. The joint remained a little swollen for some time, but no more fluid formed and the child's general condition rapidly improved. The extension was kept on until all swelling had disappeared—that is, until the end of July.

After this the child was taken to the sea wearing a back splint. This was kept on for two months, when I found the knee normal in appearance and without heat or tenderness. Flexion was perfectly free and smooth through about thirty degrees; after that there was slight resistance. I ordered the limb to be massaged, the splint to be gradually discarded, and the limb used more and more, and although I have not seen the child again, I understand that the knee now moves quite freely and painlessly and is completely recovered.

I wish to draw attention to a few further points regarding this case. The first is that from the time the joint was emptied of pus, and the extension applied, the child never again complained of pain. Consequently she slept well and soon regained her appetite, factors contributing in no small degree to her recovery.

The next point is that the organism in this case was *Staphylococcus aureus*. This is, I think, unusual, but is in conformity with the view I expressed that the infection came from the skin pustules. Of three other metastatic cases that I shall describe, the organism in one was a streptococcus, in the other two no organism was found. The third point is that the disease was not extremely acute, for the joint was not opened until the seventh day and yet recovered completely. This is what usually happens in metastatic cases, and is to a less extent, perhaps, true of some other cases. For instance, I had under my care in France an officer who had had a fragment of shell lodged in the back of the upper end of the tibia. When he came under my care he had been wounded a week, and there was a good deal of fluid in the knee-joint, but it was not particularly painful and not at all tender. He was seen by two consultants, both of whom expressed the opinion that the fluid was not pus and that the joint should not be interfered with. However, I thought it wiser to explore the joint, and on so doing found the fluid to be pus.

The next case had reached a slightly more advanced stage before the joint was explored, nevertheless the result is perfect, as you will see.

Joan C., aged 4 months, was admitted to Guy's Hospital on January 7th, 1920, with a swollen right elbow of several days' duration. The child was obviously ill; the temperature was raised and the elbow swollen, tender, and clearly extremely painful on attempted movement. Mr. Slesinger operated upon the case for me. The joint was opened, and a quantity of pus let out. After washing out the joint the incision was closed and a splint applied.

The child was better for several days, then the temperature again rose, the arm became more painful, and a fluctuating swelling appeared in the arm, the elbow itself remaining normal in size. The swelling was explored, and found to contain thick pus, but on free incision no connexion with the elbow-joint could be detected, and after drainage for a few days there was no further trouble. The bacteriological report upon the pus from this case states: "No growth obtained after several plantings."

The subsequent history was uneventful, and I am now able to show you the child ten months after the joint was opened. You see that she looks quite healthy, and that the arm and elbow move perfectly freely in all directions. In fact, but for the two scars, it would not be possible to say that the arm had ever had anything wrong with it.

This case differs from the first in that an abscess developed outside the joint. But you will note that with the formation of this abscess there was no refilling of the joint with pus, neither was any connexion between abscess cavity and joint cavity discovered at the second operation. It is quite clear, therefore, that there was no direct continuity, but that the periarticular abscess had originated in some other way. Examination of portions of synovial membrane from infected joints has proved that micro-organisms may be present in the subsynovial tissue without any massive ulceration or perforation of the synovial membrane having taken place. A proportion of the organisms in an infected joint therefore evade the attentions of the synovial membrane and escape into the tissues beyond, where they are either destroyed or cause the formation of pus, as the case may be. This, then, explains the formation of an abscess in this child's arm although the synovial membrane was not destroyed. The third case is very similar.

A boy, aged 7, was admitted into Guy's Hospital on October 8th, 1920. Eight days previously a brick, thrown at him by another boy, struck him on the left knee and grazed the skin. Next day the knee began to swell and to become painful, and during the succeeding days the pain and swelling increased.

On admission to hospital there was a small septic graze over the front of the left knee; the joint was tense with fluid, very tender, and extremely painful on any attempt at movement; the temperature was 100°, and the boy looked very ill. Under an anaesthetic the exploring syringe drew pus, so the joint was opened, washed out with mercury biniodide 1 in 4,000, the wound closed, and a Thomas knee splint with extension applied.

During the next two days the boy was clearly better, but his temperature remained high (103°), and when, on the third day, I found the knee again swollen, and the bacteriological report stated that a pure culture of *Streptococcus longus* had been grown from the pus, I thought it wiser to explore the joint once more. The result, however, was perfectly satisfactory, the fluid withdrawn being clear serum, slightly blood-stained. In view of the bacteriological report and the high temperature, 15 c.cm. of antistreptococcal serum were given subcutaneously. After this the boy improved, although the skin incision suppurated slightly, but on October 23rd—that is, fifteen days after the first operation—the temperature shot up to 103° again, and some swelling appeared in the thigh. Four days later it became clear that there was an abscess in the thigh; an incision was made and several ounces of pus evacuated, but no communication between the abscess cavity and the knee-joint, which was now almost normal in size, could be found.

From this time progress was satisfactory, and the boy left the hospital in good health on December 8th, but still wearing a splint.

Unfortunately, no culture was made from the septic graze over the knee, but I feel sure that this was the source of the streptococcal infection of the joint.

Here, as in the last case, an abscess formed outside the joint without any direct connexion, and, in fact, after the joint itself had practically recovered. It was no doubt due to spread of infection through the synovial membrane.

To recapitulate the main features of these three cases: they all were children, the arthritis in all was metastatic in origin; they all illustrate the remarkable power of the synovial membrane of a joint to deal successfully with infection; they all show the value of using the exploring syringe without delay, and they were all treated by washing the joint out through a free incision, complete closure of the incision, splinting, and extension. Finally, they all recovered—two with complete restoration of function; the third is still under treatment.

The next case presents quite a different picture.

A little girl, aged 8, was admitted to hospital after three days' illness, with a brawny tender swelling involving the lower half of the right thigh. She was extremely ill, with very rapid pulse and temperature 104°. A diagnosis of acute osteitis of the femur was made, and she was operated upon immediately. A large subperiosteal abscess was opened, and the lower part of the bone, which was found to contain pus, was rapidly laid open and packed lightly with gauze. The next day the child was better, but on the following day she was delirious, and the knee-joint was found to contain pus.

The limb was immediately amputated through the middle of the thigh, but she died the following day, abscesses in the myocardium and early pericarditis being found *post mortem*.

This case illustrates the infection of a joint from a neighbouring bone, and you will note the extreme virulence of the disease in comparison with the metastatic cases I have already described. Further, you will observe that as soon as it was found that the knee-joint was infected the limb was amputated. This course was adopted because the child was already so extremely ill that it was quite clear that she would not be able to deal with an infected joint in addition to her other troubles. In these circumstances an immediate amputation offers the only chance of saving the patient's life, and is occasionally successful in doing so.

In all the cases I have described there were very definite symptoms and signs that drew immediate attention to the affected joint, so that there was, at any rate, no possibility of failure to recognize the seat of the trouble. This, however, is not always the case, for there is another quite definite clinical type of infective arthritis—a condition which might well be described as "quiet" arthritis, since there are no acute symptoms and no pus formation. In fact, the condition is often undiagnosed and unsuspected until the patient is convalescent. Then a joint, more often than not the hip, is found to be disorganized, fixed and very probably dislocated.

I had hoped to show you a boy illustrating this condition, but he was not able to come. He was in hospital three years ago with acute osteitis, and during a long and serious illness he developed, no one knew exactly when, an arthritis of the hip which resulted in a pathological dislocation. So far as is known there was never any swelling or other sign to call attention to the hip-joint, and no pus formed, or, at any rate, no abscess was opened. Nevertheless, there is a dislocation that is easily made out, and the *x*-ray plate shows that the joint has been completely disorganized.

Such a condition may well be termed "quiet" infective arthritis owing to the absence of any definite occurrence to call attention to the condition. As in this case the hip is the joint most usually involved, possibly owing to its deep position, but other joints may in the same way become affected without attracting attention, especially in patients lying desperately ill from a blood infection. The knowledge of the possibility, as illustrated by this case, will no doubt help to emphasize the importance of keeping a watchful eye on the joints in all cases of acute infective illnesses.

ACUTE INTESTINAL OBSTRUCTION.

A SERIES OF 282 CASES.

BY

E. R. FLINT, F.R.C.S.,

SURGICAL TUTOR AT THE GENERAL INFIRMARY, LEEDS.

THE object of this paper is not to detail the frequency of the various kinds of acute obstruction, or to show the relative proportions in males and females and the ages at which they occur, etc. These points have all been worked out in papers by many authors. It is mainly to the subject of treatment my remarks will be directed.

The operative mortality of acute obstruction is generally held to be somewhere between 40 and 50 per cent. in a series of cases. There is no doubt this large death rate is attributable in no small degree to operation being performed on cases sent into hospital very late in the disease, but I hope to show that by making use of the results revealed by recent experimental work it is possible to reduce this mortality very materially.

This series of cases is 282 in number and a consecutive series upon which I have operated in a period of two years. They were taken as they came, without any attempt at selection as regards suitability for operative purposes, and are a very fair sample of the type received into any large hospital.

There is no doubt that there has been much improvement of recent years in the matter of early recognition of serious abdominal cases of all descriptions, but acute intestinal obstruction has still a very heavy mortality, which is due partly to delay and partly to the very vital character of the organs concerned.

The mortality in this series is 15.6 per cent. As will be seen from the table below I have included strangulated external herniae and acute obstruction from carcinoma. It is not usual, perhaps, to classify these with the ordinarily accepted cases of acute obstruction. Leaving these out of account, there were 70 cases, with a death rate of 28.5 per cent. This is still too great a mortality, but a considerable improvement.

Classification of Cases and Mortality.

	No. of Cases.	Deaths.	
		No.	Per cent.
External herniae	170	18	10.5
Bands and adhesions	39	10	25.6
Intussusception	26	10	38.4
Carcinoma of intestine	42	6	14.6
Volvulus	2	0	
Internal hernia	1	0	
Thrombosis of mesenteric vessels ...	1	0	
By gall stone	1	0	

I included external herniae because the pathology is essentially the same as that of many cases of strangulation by band, and the carcinoma cases are included because they were admitted as emergencies, and in many of them the only diagnosis possible before operation was acute intestinal obstruction.

Let us consider first the experimental work, the application of which, I hold, is of the greatest importance in the treatment of acute ileus.

Wilkie[1] has shown that the contents of the intestine above an acute obstruction are very toxic and teeming with bacteria, and that the mucosa protects the organism against a toxaemia until it becomes seriously damaged by great distension, demonstrating the important selective and neutralizing function of the intestinal mucosa. The work of McLean and Andries[2] fully confirms this.

Further confirmation of the late absorption of the toxic contents of the intestine was established by Wilkie in a series of experiments on cats, in which he produced an acute obstruction and then injected into this obstructed part the toxic contents from the intestine of cats which had died of an acute obstruction. If toxic absorption had killed the first series, and the second started out with its obstructed intestine filled with the toxic material from the first series, symptoms of toxaemia should very quickly supervene; the results, however, were the same as in the first series. If, then, toxaemia is not responsible for the symptoms of acute ileus until a late stage, to what are the early symptoms due? Wilkie's experiments on cats show that early death in acute strangulation is mainly due to shock with its associated splanchnic paresis and depleted systemic circulation (internal loss of fluid); that peritonitis plays an important part only after some twenty-four hours, when the vitality of the mucosa has been considerably interfered with. Death in high intestinal obstruction—as opposed to strangulation—is due to shock also, but in this case the fluid is largely lost externally through excessive vomiting, as well as into the tissues, and in the absence of strangulation the vitality of the mucosa persists much longer. Death in low obstruction is much later in its occurrence, owing to reabsorption of much of the intestinal secretion poured out into the upper reaches of the intestine.

Among the effects of shock are a concentration of the blood and increased viscosity due to loss of plasma from an abnormal permeability of the capillaries. Severe pain, which causes an outpouring of adrenaline from the suprarenal glands, can produce these evidences of shock, as shown by Elliott, Cannon, and others. And it is not too much to suppose that the severe pain, probably peritoneal in origin, caused by acute obstruction of such vital parts as the intestines, is enough to bring about this outpouring of adrenaline and the production of shock. Later, the shock will be kept up by toxic absorption, for, as Dale and Laidlaw[3] have shown in their experiments with the poison histamine, shock may be produced, and this substance acts apparently in the same way as many products of protein digestion and bacterial activity.

In cats Wilkie has demonstrated the immense value of subcutaneous saline infusion. In obstruction of the distal part of the duodenum in a cat the animal vomits large quantities of bilious fluid, is very thirsty, and loses weight rapidly, dying usually within seven days of onset. If, however, the animal be given daily subcutaneous infusion in large quantities with 3 per cent. dextrose, not only will it show immediate improvement, but life will be prolonged for many days beyond that of a control animal.

Another point of much importance is brought out by Wilkie, and that is that toxic absorption from the intestine below an obstruction, after the relief of this, has been greatly exaggerated; indeed his experiments scarcely permit of its occurrence at all. The intense danger, however, of the least soiling of the peritoneum with this highly toxic material is forcibly emphasized. He concludes that peritonitis plays little part in the causation of death in simple acute obstruction until the late stages, unless accidental soiling occurs at operation. I shall revert to the practical surgical application of these experiments after considering those of another experimenter—namely, Crile.

Crile's[4] work is mainly concerned with shock, and as shock is closely associated with the cause of death in acute ileus, his experimental work is quite pertinent. He has elaborated a very perfect technique for the prevention and lessening of the harmful effects of severe and prolonged stimulation. The principle of this anoci-association is the blocking off of the entry of the stimuli to the higher centres of the nervous system, both physical and psychical stimuli. This is accomplished by the free use of morphine, local anaesthesia, and gas and oxygen as a general anaesthetic. Morphine lessens the conductivity of the nerve paths, whereas strychnine, which is often given to patients suffering from shock, to "buck them up," as it is said, increases conductivity, and so enables the nocuous stimuli to get to the nervous system more easily. Morphine should only be given in the absence of cyanosis; this symptom, according to Crile, indicates a state of acidosis, and morphine impedes the efforts of the tissues to rectify it. Morphine should be given in repeated doses at half-hourly intervals until the respirations fall to 12 or under. The ideal method is, of course, to get the morphine in first, before the painful stimuli begin; naturally this is not possible in acute ileus, but even so the effect of the drug is to cut off much of the shock producing stimulation.

Local anaesthesia, when efficiently performed, cuts off all stimuli arising in the blocked area. The reason for using nitrous oxide is this: Crile found that this anaesthetic so protected the central nervous system that very few or none of the characteristic changes which are produced in the cells by excessive stimulation appear when stimulation is applied during the administration of this anaesthetic; whereas during ether or chloroform narcosis the same changes occur in the cells, and with nearly as great ease as when the patient is conscious of pain.

In my series of cases these principles were deliberately utilized. I did not, however, always use local anaesthesia, and open ether was the general anaesthetic always employed. Gas and oxygen has this practical objection: that many anaesthetists find much difficulty in obtaining a sufficient relaxation, and this is particularly impeding to the surgeon in such a condition as obstruction, where the distended intestines are often extremely difficult to control even under the most favourable disposition of affairs.

It is evident, therefore, that it is not in the best interests of the patient merely to operate at the earliest moment. Certainly, broadly speaking, the sooner the patient is brought to operation the better, but there is usually an interval between deciding to operate and the commencement of the actual operation—an interval of perhaps an hour or two at the least, during which measures should invariably be taken to assist the resources of the patient, both against his disease and against the additional shock of the approaching operation.

In addition to the usual measures of warmth, washing out the stomach, and so on, there are two of the first importance—namely, saline infusion and morphine.

First, with regard to saline infusion. This should be given at the rate of at least two pints an hour before operation, and continued during and after operation at about half this rate. Five per cent. glucose should be added, and it will usually have to be given subcutaneously. I think saline infusions are absorbed more quickly when given by the rectum, but in acute ileus they are not always well retained. It is common knowledge that in deep shock saline has a very transient effect; nevertheless, even then it produces temporary improvement in the patient's condition. The earlier it is given the better the effect. Dale and Laidlaw suggest the addition of calcium ions, as this drug has a specific action in reducing the permeability of the capillaries. I have tried calcium chloride in 0.05 per cent. strength, and have not been able to convince myself that it is any more efficacious than normal saline. I am not sure that whole blood would not be better, but, so far, I have not been able to satisfy myself that this is the case in acute obstructions.

The second measure to use is morphine. As soon as it has been decided to operate the sooner morphine is given the better. To an adult ¼ grain may be given at once, and repeated in doses of ⅛ grain, or just over, every half-hour until the respirations fall to about 12. I usually give $\frac{1}{12}$ grain to quite young children with intussusception for example, and repeat it. Morphine should be continued after operation and the patient be allowed gradually to come out from its influence during the succeeding twenty-four hours.

Pituitary extract is another useful drug. It exerts a prolonged and general contraction of the circulatory system, and thereby diminishes the total capacity of this system, and mitigates the effect of deficient blood volume. After operation it may help to produce muscular contraction of the intestine. Eserine is another drug which may be used for this latter purpose.

For the last ten minutes of the operation the patients were made to breathe pure oxygen through an inhaler. This seemed to better their condition, and I am not sure it would not be a good thing to keep this up for some time after, in much the same way as is done for cases of gas poisoning and others.

As to the operation itself, the earlier in the case it is performed the simpler it will be, and in the more leisurely manner may it be done. As a rule, the cases are not seen at this desirable stage, and quick operating is usually required, and at times is absolutely essential; but rapid, inaccurate, and rough work is responsible for many deaths. Repeated indecisive handling of the same parts is to be avoided. Precision, with gentleness and the minimum of exposure, are the essentials for success. Plenty of warm and moist towels to cover intestine, which may unavoidably prolapse, or be purposely turned out, and more than usual care to avoid soiling, are points which require particular attention.

The most useful incision is a right para-umbilical one, splitting the rectus muscle. In some cases a large intestine growth will be found, and colostomy or typhlotomy be required. The central incision is then used for the purposes of exploration only, and stitched up before the artificial anus is made through a separate opening. If the intestine be found viable nothing remains to be done but release it, either by freeing the adhesions, or, if the obstruction be by band, this will need dividing and ligaturing close to both its attachments.

It may be found that the line or lines of compression are anaemic, or even have cut through into the intestinal lumen, the rest of the gut being returnable with safety. In this case it is wiser to bury this area than attempt a resection. Any suturing which has to be done requires infinitely more care than is necessary in suturing under non-obstructive conditions. It is almost certain that the serous stitch occasionally penetrates into the lumen of the gut, and is not attended by disaster, but in obstructed and tightly distended intestines leakage occurs at such a point, with an inevitably fatal result.

Enterotomy, merely to drain the intestine at the time of operation, is never necessary, and is a very risky procedure.

It often happens that there is a sero-sanguineous fluid in the peritoneal cavity in cases of strangulation. This should be mopped out, and no drainage employed in the absence of offensive smell. This fluid may be present for forty-eight hours before it becomes infected. If there is even a faint faeculent odour about it a tube should be inserted into the pelvis through a stab wound. Any such smell means also that the intestinal wall is incompetent at some point, and would be an indication for not merely returning the intestine into the abdomen.

Whether the intestine is viable or not requires experience to determine in many cases. When the colour is a dirty grey or greenish-grey, or the brown of a dead leaf, and the gut feels like wet blotting-paper, it is quite certain that recovery is impossible; it is equally certain that it will recover when the colour is red, or even black, if there is any resistance to touch in the walls. It is in the intermediate stages that difficulty may arise. I think more reliance may be placed on the fingers than the sight in these cases. If the walls feel limp and offer no sensation of firmness to the fingers—it is, perhaps, too much to call it resistance—then it is not likely that recovery will occur. The mortality of all cases not requiring resection in this series was 9.3 per cent.—that is, 236 cases, with 22 deaths.

When it has been decided that resection, or anything more than merely freeing the intestine, is necessary, the utmost care should be expended in isolating the field with protective appliances. Gauze swabs wrung out in hot saline are carefully packed in all round, and over these, protecting them and the edges of the wound, are placed mackintoshes; these consist of a sheet of dental rubber stitched into a thin gauze covering. These serve two purposes—they prevent in a most efficient manner the entrance of septic material from the damaged intestine; and, secondly, they keep in the natural moisture and warmth much better than does a pervious material like gauze alone.

Having protected the field one proceeds to deal with the damaged gut. In most cases this will mean resection. After removing the necessary amount of intestine it is as well to empty some of the contents from the proximal segment by inserting Moynihan's tube. This makes suturing much easier. A lateral anastomosis is the best method of union to employ, because it is safer and there will be much difference in calibre between the two ends. Enterostomy should only be done in the very desperate cases. It is not always easy to know exactly where the opening is being made, and if high in the intestine the patients waste rapidly. Also it is necessary, as a rule, to do the second operation within a few days of the first, when the patients are not fit to endure much manipulation, and it is just these cases which are exceedingly difficult to deal with. Consequently the mortality is a very high one after the second operation. Nevertheless, some desperate cases have been now and again saved by this measure.

One more practical point, which I have found of great use, is the finding of the obstruction. Much needless exposure, and therefore much avoidable shock, is prevented by first examining the caecum and terminal ileum. Distension of the caecum, of course, means obstruction in the large intestine, and the condition can be dealt with as below. But if one finds a piece of collapsed ileum, this should be followed towards the stomach until the distended intestine is met. The examined part is returned as finished with. This method only requires about 2 in. of gut to be out of the abdomen at any one moment.

It should always be kept in mind that there may be more than one band causing obstruction; in my series there were two such cases.

In this series there were 46 cases which required resection; 11 of these were intussusceptions, with 9 deaths. This is in marked contrast with the reducible cases, of which there were 15 with 1 death. The youngest successful resection was in a girl just under 3 months old.[5] The mortality of all resections was 45.4 per cent.

Of the cases in Group 2, 12 were the result of bands and adhesions due to the presence of tuberculous mesenteric glands, 9 to bands not of tuberculous origin, 4 to Meckel's diverticulum acting as a band, 1 to the appendix acting as a band, and 13 to adhesions resulting from previous operations—2 of these occurred during the first few days after appendicectomy with drainage. It is interesting to note that when adhesions caused the obstruction, this appeared to result from a rotatory effect given to the intestine rather than from kinking.

The volvulus cases were both of the caecum—one was merely reduced and fixed, the other required resection.

The internal hernia was through a hole in the mesentery, and whether of congenital origin or not was not determined, though there was no history of injury.

The case of thrombosis of the mesenteric vessels required resection of some 4½ feet of small intestine, apparently about the lower jejunum, and was successfully accomplished.

In the gall-stone case the stone was impacted in the lower ileum, and was removed, the intestine being sutured.

Of the external hernia cases there were 170, with 18 deaths, a mortality of 10.5 per cent. Fifty were inguinal, with the strangulation at the external abdominal ring in at least 40—it was only found at the internal ring in 5; there were 3 deaths. Ninety-eight were femoral, with 11 deaths. Eighteen were umbilical, with 4 deaths.

Resection was performed only once in the inguinal cases, 18 times in the femoral, and 4 times in the umbilical.

It is interesting to note how much more serious to the vitality of the intestine is a femoral hernia, probably due to the much tighter ring.

Most of the femoral hernia cases were operated on from the abdomen through the outer part of the rectus sheath. It was necessary to free the sac from below, and Gimbernat's ligament was also usually divided from below. The peritoneum was efficiently protected, and first the gut reduced and dealt with from above, and later the sac was turned inside out into the abdominal wound. There is a distinct advantage in this method in two ways—first, it gives much more satisfactory access in case resection be necessary, and secondly, a radical cure is more easily effected, for the neck of the sac can be stitched up into the abdominal wound and the inner end of Poupart's ligament can be stitched to Cooper's ligament under direct observation on the upper side of the pubic arch. Also, if thought necessary, a piece of the rectus muscle can be carried across to Cooper's ligament, though I have never found that this was required. I have never seen a case recur after this method, though it is probably claiming too much for it to expect never to see a recurrence.

As regards the carcinomata cases, it usually happens that a positive diagnosis is only made after an exploration by a right para-umbilical incision. It is unfortunately true that most cases of carcinoma of the colon are only recognized either after giving rise to acute obstruction or on the discovery of a tumour. When the patient is desperately ill it is better to do typhlotomy at once, but when possible an exploration is advisable to ascertain the position of the growth and the feasibility of subsequent removal. If the growth is in the sigmoid and irremovable a colostomy should be done, but if removable, typhlotomy. There is no doubt that the danger of sepsis at the second operation is thereby much reduced. A growth higher up in the colon requires either typhlotomy or, when in the descending colon or left half of the transverse colon, transverse colostomy may be done; if, however, there is a removable growth in these parts I believe it is always better to do typhlotomy.

Carcinoma of the rectum, of course, can be diagnosed before operation, and in any case requires a colostomy.

REFERENCES.

[1] Wilkie, *Experimental Observations on the Causes of Death in Acute Intestinal Obstruction.* [2] McLean and Andries, *Journ. Amer. Med. Assoc.*, November 2nd, 1912. [3] Dale and Laidlaw, BRITISH MEDICAL JOURNAL, March 24th, 1917. [4] Crile, Anoci-association: Crile and Lower. [5] Flint, *Lancet*, May 31st, 1919.

ABDOMINAL PAIN:

*ITS MECHANISM AND CLINICAL SIGNIFICANCE.**

BY

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POSSIBLY no symptom in the whole realm of disease is of greater interest and of wider distribution than that of pain. To the uninitiated it is often considered a mystery, more perhaps from its moral aspect than from its clinical. To those of us who regard it in the light of an indication that Nature is conveying information of considerable physiological and clinical importance in the elucidation of functional and pathological disorders, it becomes a subject of the greatest significance. As a study in itself, pain embraces an accurate knowledge of certain anatomical and physiological facts, as well as a comprehensive investigation into the morbid processes of disease. The subject is naturally a very wide one, and in the short hour at my disposal I can only deal with it in a very restricted way. My remarks, therefore, are to be limited to the discussion of pain as it is manifested in the abdomen.

For us, as clinicians dealing with the symptoms of disease, the most practical part of all these considerations about the nerve supply of the various parts of the body is that which concerns the ultimate distribution of the spinal nerves; for it is by means of these that we gain a great deal of our clinical information regarding the various seats of disease, and sometimes also the particular nature of the disease. It behoves us, therefore, to remember very accurately the final distribution of every nerve that leaves the brain and spinal cord to end in some part of the body. Take, as an example, the sixth thoracic intercostal nerve. In its course between the sixth and seventh ribs it gives off close to the spine its posterior primary branch, which is distributed to the skin between the lower angles of the scapulae; then, about the middle of the intercostal space, from before backwards, it gives off its lateral cutaneous branch, which ends in the skin on the side of the chest a little below the level of the lower end of the scapula; and, finally, the nerve ends in the sensory organs contained within the skin of the epigastric region at its upper part.

[Here the lecturer showed by means of diagrams the various anatomical connexions between the sympathetic nerve system, the spinal cord, the nerves, and the viscera.]

Clinical Significance of Pain.

Let us turn our attention to the practical application of the knowledge by which communications take place between the brain and spinal cord and the various parts of the body, and see how it works out in the diagnosis and treatment of disease. As a first clinical example we may take pain felt in the epigastrium, the side, and the interscapular region in the case of chronic gastric ulcer. The nerve supply of the stomach is, of course, by means of the two vagi and the sympathetic solar plexus, the latter being intimately connected with the coeliac plexus, which in its turn receives nerve branches from the subsidiary plexuses that are directly associated with the stomach. When, then, ulcer of the stomach causes pain to be felt in

* Abstract of a lecture delivered to the students of Queen Margaret College, University of Glasgow.

the parts before mentioned, the lines of communication between the seat of disease and the centres of pain are those that have already been anatomically traced; thus, from the great solar plexus, the large splanchnic nerves pass upwards to the sixth thoracic sympathetic ganglia, fibres from which pass onwards to the cells in the posterior cornua of that segment of the cord which also receives fibres from the sixth thoracic intercostal nerve. Now, inasmuch as these spinal nerves have at their terminals sensory organs capable of producing the impression of pain it follows that this pain will be experienced in those parts where these sensitive organs are located; and those in the case of the sixth intercostal nerve will be in the epigastrium, the side of the chest, and between the shoulder blades. Pain thus occurring not at the actual seat of disease, but at some other place, often at a considerable distance, is called a "referred" pain. Nearly all pains felt in connexion with abdominal disease connected with the viscera are of this "referred" character.

To illustrate this further, let us take some other examples: those, for instance, connected with the presence of gall stones and those associated with the existence of calculi in the kidney. Here we have two organs closely related anatomically to each other, with many symptoms also much alike, but in which the acute colicky pains are widely different in their seats of distribution. To explain this divergence of two organs so closely related and so similarly affected, we have simply to refer to the anatomical distribution of the nerves respectively associated with each viscus in order to ascertain how the affected viscera cause the symptom to become manifested in a distant part of the body. In the case of gall stones, the first link in the chain is the hepatic sympathetic plexus. This plexus is, of course, connected with the coeliac plexus, itself intimately associated on the one side with the great solar plexus, and on the other side with the phrenic ganglion, which is situated in the diaphragm. It has already been shown in the case of the stomach how the solar plexus by its somatic connexions causes pain to be felt in the epigastrium. It is the connexion of the hepatic plexus with the phrenic ganglion situated in the diaphragm that explains the right shoulder pain; for this ganglion, through the medium of the phrenic nerve, is brought into relation with the fourth cervical nerve that distributes branches over the shoulder.

Another interesting example of "referred" pain is that connected with acute appendicitis. In this disease the initial seizure is frequently felt in the umbilical region before the pain settles down into the right inguinal region. The sequence of events is not difficult to follow. The inferior mesenteric plexus supplies the ileo-caecal section of the intestinal canal, and therefore the appendix also; but this plexus, through the medium of the aortic plexus, connects with the solar plexus, so that a communication is set up with the large splanchnic nerve. This nerve connects, through the corresponding sympathetic ganglia, with the fifth to the ninth or tenth thoracic intercostal nerves, whose final distribution is the epigastric and umbilical regions, where are the sensory end-organs that give rise to the feeling of pain. That pain is later felt directly in the right iliac region over the actual seat of disease is probably due to the inflammatory involvement of the parietal peritoneum, which is an extremely sensitive structure, and readily causes pain when overstimulated by any unnatural agency.

I am anxious now to present the picture in another form. In our practical clinical work we do not begin with a knowledge of the organ diseased and explain the presence of the pain; we do just the reverse. We investigate the nature and situation of the pain, and from these data seek to discover the disease. I am going, therefore, to ask you to examine a specific instance of a patient suffering from pain, say, in the epigastric region, and to seek with me to differentiate its clinical significance. It should be remembered, in the first place, that we are dealing with a "referred" pain, not with pain that is dependent on some local mischief in the abdominal parietes, but with that which is the result of influences transferred from some distant organ or tissue. Our first natural thought connected with pain in this region would be that it might be of gastric origin, but as there may exist no other symptoms suggestive of disease or functional derangement of the stomach, what other causes could give rise to it? I think that if you have followed me in all that I have already indicated regarding the way in which the various nerve influences are conveyed you will readily understand how it is possible for certain sensitive cutaneous areas to be the focalizing seats of pain indicative of disease in more than one organ or tissue. This fact is very plainly demonstrated in the case of epigastric pain. You will remember how many abdominal viscera are associated through the medium of their respective sympathetic plexuses with the great central solar plexus, and how this plexus again, by means of the large splanchnics, is brought into connexion with the sixth and other intercostal nerves; so that, for instance, any acute disease of the pancreas—to mention only one viscus—would be as likely to cause pain in this region as an acute gastric disturbance.

What I wish more particularly to draw your attention to is the fact that not only can epigastric pain result from influences derived from diseased viscera, but that the involvement of any link in the chain between its two terminals—the cutaneous structures and the viscus—can equally evoke pain in this region. Before the splanchnic afferent nerves can excite the somatic afferent nerves both must more or less come into association with the cells of the posterior cornua. If, then, these cells become unduly excited by disease in the spinal cord, which directly involves them, a precisely similar result ensues as if they had been overstimulated by influences brought to them by the splanchnic nerves. This is what happens in patients suffering from tabes dorsalis, who frequently complain of acute seizures—crises—of epigastric pain. But, further, suppose the sixth intercostal nerve is involved in any part of its course between the spinal cord and its ultimate seats of distribution, pain will similarly occur in the epigastric region. This is precisely what happens in some cases of pleuropneumonia and in tuberculous caries of the spinal column. It is extraordinary how many mistakes have been made where epigastric pain has arisen from these causes. In the early stages of our abdominal work I fear that there were few surgeons who would not have had to confess to errors of judgement in this respect, more particularly in the cases of inflammation of the lungs and pleura.

I might take up other cutaneous areas where "referred" pain is felt, the cause for which could be attributed to more than one source. I think, however, that I have said enough to excite your interest, and indicate to you the important clinical fact that we must never stake our diagnosis on one solitary symptom however prominent and significant that symptom may be. Possibly you will be struck more forcibly with the value of adopting this method of clinical research in seeking to trace the cause of a "referred" pain if I instance a somewhat puzzling case that I recently encountered. It was a patient who had acute appendicitis, and in whom the most dominating symptom was a severe and continuous pain over the right shoulder. It led to the natural inference that the cause of the trouble might be gall stones. But the deciding factor in arriving at a correct diagnosis was the rigidity of the muscles in the right iliac and lumbar regions, and the pain produced on deep pressure in these parts. The abdomen was therefore opened as for appendicitis in the right iliac region. The diseased viscus was found lying upwards under the ascending colon. It was free, but from the existence of free turbid fluid in and around the region of the appendix there was evidently a certain amount of peritonitis. This I think is the probable explanation of the "referred" pain felt in the shoulder. The peritonitis in the region of the appendix extended to the liver and the under surface of the diaphragm; this caused an involvement of the phrenic ganglion, and as the phrenic nerve connects this ganglion with the fourth cervical spinal nerve, the pain over the shoulder is at once explained. The fact that the removal of the appendix and the subsidence of the peritonitis completely cured the pain sufficiently suggests that the explanation given was probably the correct one.

Variations in Manifestation.

It is interesting to consider the various conditions that affect both the nature of the pain produced, its extent, and its degree of severity. As clinical factors of diagnostic significance they are of considerable importance. As regards the nature of pain, we are almost entirely at a loss to explain why, for instance, a pain should be of a

"burning" character, "cutting," "stabbing," or "gnawing" like toothache. A pain of the intermittent "colicky" or "gripping" type does, however, admit of a more or less satisfactory explanation, for it indicates an unduly violent effort on the part of involuntary muscles to expel some foreign or excessively irritative material, or to overcome obstruction. We encounter this type of pain in chronic intestinal obstruction, and also in the presence of renal and biliary calculi. With this exception, however, the other characters of pain seem to be inexplicable; and from the fact that the same disease may cause different types of pain we are unable—at least at present—to attach much clinical importance to these varied manifestations.

When we come to consider pain from the point of view of degree or severity we are brought up against some very interesting problems. The first of these concerns the individual regarded as a collective organism. Some patients have a much more sensitive nervous system than others, so that what may be easily endured by one may be almost beyond toleration by another. These normal constitutional variations are always worthy of careful consideration. Then we have the effect of certain blood conditions which may have an augmentative action on the sensitiveness of the system to pain. In fever, for instance, the increased temperature may unduly excite those cells in the spinal cord or brain which are concerned in the production of pain; and these cells may also be similarly affected in certain anaemic conditions of the blood—possibly, from impoverishment, the result of deficient or defective nourishment, they are more susceptible to stimulation.

With regard to the distribution of pain, there are equally some very interesting problems to solve. To give an instance or two of what I particularly refer to: Why should pain in appendicitis sometimes be felt in the left iliac region? Why should stone in the kidney on one side give rise to pain on the other—a reno-renal reflex as it is termed? You will remember that, when discussing the causes of "referred" pain, I indicated how it was in all likelihood explained: that certain cells in the posterior cornua of the spinal cord, lying in close contact with other cells, when stimulated, transferred that stimulation to those other cells, and thereby caused an impression to be produced which accounted for the particular location of the pain. Now, these cells in the one cornua are connected by nerve filaments with similar cells in the other cornua; and if we assume that, for some unexplained reason, the cells in the opposite cornua are more sensitive to exciting influences than those on the side of the disease, we get the impression produced that the disease is on that particular side.

Let me instance a case that came under my observation many years ago—in the pre-*x*-ray days. The misfortune which followed the operation performed could not very well happen now when, by means of photography, we are so able to assure ourselves as to the existence or not of a stone. The patient referred to complained of pain in the right lumbar region, strongly suggestive of renal calculus. The kidney was cut down upon and explored, but no stone was found. The patient died four days after the operation from suppression of urine, and at the necropsy a stone was found in the left kidney.

It is but a further extension of the explanation that I have just given to understand how it is that pain may be widely diffused or distributed and not "referred" to any particular part or region. For if owing to undue excitability of all the cells in the spinal cornua more than those normally stimulated become involved, you can readily appreciate how much more extensively diffused must be the area of pain felt. Thus it sometimes happens that when these cells are in an unduly excitable condition, or when, perchance, the stimulus itself is of so acute a nature that it oversteps the limitations of even normal cells, the pain resulting from disease of an abdominal organ may not be limited to any particular part of the epigastric, umbilical, or hypogastric regions, but be more or less diffused over two or more of these regions.

I have not time to touch upon many other points which the study of abdominal pain presents, and this short hour has only permitted me to deal with the fringe of my subject. If I have done no more than to excite your interest I feel sure that that awakened interest will prove useful to you in the future pursuit of your profession.

THE PHYSIOLOGICAL COST OF MUSCULAR WORK.

BY

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AND

J. A. C. CAMPBELL.

IN the article published in this JOURNAL (May 7th, 1921, page 669) Waller and De Decker record results giving the physiological cost of muscular work of colliers, shoemakers and others as measured by the exhalation of CO_2. We are carrying out experiments of a similar nature with Dr. E. Schuster's modification of Martin's bicycle ergometer—doing 13,000 kg.m. of work per hour—using both the method employed by the above observers and the standard Douglas bag method, in which both the CO_2 output and oxygen use are measured, and the heat loss calculated therefrom, as recommended by Cathcart.[1] As the results we have obtained with these two methods rarely agree, we consider that the possibility of limitation of Waller and De Decker's method should be emphasized before deductions other than the broad difference between light and heavy work are drawn from their results. We consider that a source of error is the short duration—thirty seconds—of the period for obtaining the sample of expired air. We have found that the volume of CO_2 expired while at rest or at work varies greatly during consecutive half-minute periods (Table I), and also that the CO_2 exhalation per second obtained in a thirty-second sample is rarely similar to that obtained per second during a four-minute period (Table II).

TABLE I.—*Consecutive Half-minute Samples of Expired Air.*
(Subject J.A.C., unaccustomed to use of mouthpiece.)

Date.	Resting.			After working 1 hour on ergometer.		
	Sample.	Heat Loss.*	CO_2 (c.cm. per sec.).	Sample.	Heat Loss.	CO_2 (c.cm. per sec.).
April 1, 1921	1st	0.49	1.3	1st	4.76	15.7
	2nd	0.76	2.1	2nd	4.25	13.7
	3rd	1.10	4.1	3rd	4.00	12 6
April 4, 1921	1st	1 50	3.8	1st	4.49	13.1
	2nd	1.45	3.7	2nd	4.52	13.6
	3rd	1 24	3.3	3rd	4.00	13.8

* The heat loss in all tables is in terms of millicalories per squar centimetre par second. Cathcart's method for calculation being usede On April 4th J. A. C. had become more accustomed to the use of th. mouthpiece.

TABLE II.—*Half-minute and Four-minute Samples.*
(No food taken. Subject C.P., accustomed to use of mouthpiece.)

Date		Half-minute Sample.		Four-minute Sample.	
		Heat Loss.	CO_2 (c.cm.per sec.).	Heat Loss.	CO_2 (c.cm.per sec.).
April 25, 1921	After 2 hours' work on ergometer	5.8	17.7	4.6	12.7
	After 3 hours' work on ergometer	6.3	19.2	—	11.0
	After 4 hours' work on ergometer	5.4	16.4	4.2	11.2
May 4, 1921	After 2 hours' work on ergometer	3.3	8.3	5.1	13.6
	After 4 hours' work on ergometer	4.8	12.7	4.9	13.2

Another factor on which these observers do not apparently place sufficient emphasis is the influence of food. Benedict and Carpenter have shown that the ingestion of all kinds of food in any amount results in an increment of metabolism.[2] We have obtained similar results. We think that there is a danger of a reader misinterpreting the charts and tables as presented by Waller and De Decker. In nearly all their cases the cost per hour of "practically maximal and constant" work appears to increase as the day proceeds. Johansson's curves of diurnal temperature

and CO_2 output of a normal individual living a normal life vary together. This, we suggest, is due to the influence of food, and that if this be excluded the CO_2 cost per hour of this constant work remains the same at any period.[3] Benedict and Cathcart's well-known experiments on a trained bicyclist in the post-absorptic condition, show clearly that severe constant work requires the same amount of CO_2 exhalation per second at the end of three hours of work as during the first hour.[4] Using a bicycle ergometer and four-minute samples of expired air, we have obtained similar results (Table II). It is only after taking food (Tables III and IV) that our subjects show a rise of CO_2 exhalation similar to the increase shown in Waller and De Decker's charts.

TABLE III.—*Showing Effect of Food whilst Resting.*
(Subject C.P., resting. Ten-minute samples of expired air.)

Date.		Heat Loss.	CO_2 (c.cm. per sec.).
April 20, 1921	One hour after food ...	1.13	3.2
March 30 ,,	,, ,, ,, ...	1.16	3.0
April 20, 1921	Two hours after food ...	1.43	3.7
March 30 ,,	,, ,, ,, ...	1.47	4.0

TABLE IV.—*Showing Effect of Food whilst at Work.*
(Subjects C.P. and L.H., working on ergometer. Four-minute samples of expired air.)

	Heat Loss.			CO_2 (c.cm. per sec.).		
	L.H.	C.P.	C.P.	L.H.	C.P.	C.P.
Two hours before food	3.3	4.9	4.23	12.7	12.3	11.8
One hour before food	3.5	4.8	3.88	11.9	12.0	11.1
Food taken.						
One hour after food ...	3.9	4.2	4.9	13.1	11.5	12.6
Two hours after food	4.2	5.1	4.86	14.9	14.3	14.7

It is well known that a fatigued or uncomfortable subject carries out a given amount of work at a greater cost than when normal, but it does not seem reasonable that the colliers and shoemakers under consideration are so unskilled and of such poor calibre as to show signs of fatigue after a couple of hours' constant work, when this work is of the degree specified.

REFERENCES.
[1] *Journal of the Royal Army Medical Corps*, November, 1918. [2] Publication No. 261, Carnegie Institute, Washington, 1918. [3] Lusk, *Science of Nutrition*, Third Edition, p. iii. [4] *Muscular Work*, p. 66. The Carnegie Institute, Washington, 1913.

COMPARATIVE SYSTOLIC BLOOD-PRESSURE READINGS IN THE ARM AND LEG IN AORTIC INCOMPETENCE.

BY

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THE higher systolic reading by the blood-pressure instrument in the leg compared to that in the arm, when both are at the level of the heart, appears to have been so generally accepted as a characteristic and even diagnostic sign in aortic incompetence that it would seem to serve a useful purpose briefly to review the subject, so as to consider whether or not this conclusion is a sound one, and, if not, what are the fallacies which underlie it.

Leonard Hill, with the co-operation of Martin Flack and W. Holtzmann,[1] first made the observation that in all cases of aortic regurgitation there is a marked difference between the reading of the systolic arterial pressure in the arm and in the leg, that in the leg being the higher, the observation being taken in recumbency. These observers further state that "when such patients are lying quiet in bed this difference is a diagnostic sign of aortic regurgitation." They found that the difference of pressure is not abolished by the method of oscillating the pressure up and down near the obliteration pressure. The explanation which they give of the difference is that the "big systolic waves are conducted better down the leg arteries, these being slightly thicker and more contracted and rigid." In a later paper Hill and Rowlands[2] brought forward additional cases illustrating the same phenomenon. H. A. Hare came to similar conclusions to those of Hill.[3] H. D. Rolleston[4] confirmed the observation, and among other conclusions found that the difference between the maximum systolic blood pressure in the arm and leg is most marked in uncomplicated and compensated aortic regurgitation, but "is much less marked in aortic regurgitation when the compensation is failing, and in cases of combined aortic regurgitation and mitral disease"; further, that "in recent aortic regurgitation before compensation is established the difference is slight or may be absent." J. R. Murray[5] published records showing similar differences. J. Heitz[6] recorded observations on 51 cases concerning this phenomenon, and whilst finding it in the majority of cases, disagrees with Hill as to its constancy. He, moreover, draws attention to the important fact that the difference is to be found in other classes of cases. He says: "L'élévation de pression dans les artères tibiales peut être constatée chez la plupart des sujets atteints d'insuffisance aortique" . . . but "elle peut manquer dans un certain nombre de cas." Again: "L'élévation de la pression systolique aux membres inférieurs peut se constater avec une certaine fréquence chez des sujets hypertendus et non atteints d'insuffisance aortique." He has also found it in abdominal aortitis. He concludes that the sign "ne présente donc pas de valeur diagnostique absolue."

Such a difference of pressure readings may certainly occur in other conditions than aortic incompetence. Thus I have observed it in high-pressure cases associated with arterio-sclerosis,[7] and, according to Clifford Allbutt, this observation was first made by Volkmann.[8] Further, MacWilliam has found the same difference in some patients with sclerotic arteries.

The conclusions drawn from my own observations are as follows:

1. Although higher systolic readings in the leg than in the arm appear to occur in the majority of cases of aortic incompetence, there is a large minority in which they do not obtain.

2. There is no evidence that such cases, when they do exist, are the result of the actual aortic incompetence rather than of the commonly associated conditions of hypertonic contraction or hypertrophy of the muscular coat, with or without accompanying sclerotic changes, conditions which also occur independently of aortic incompetence.

3. In support of the arterial explanation of such differences is the fact that the large majority of cases of the series in which the arteries were thickened showed the difference, being a much larger proportion than obtained in the total number of cases of the series (all of which had aortic incompetence); and further, that in the adult cases of aortic incompetence, nearly all of which had thick arteries, the phenomenon was more than twice as common as in the children, in none of whom were the arteries thickened.

4. If due to the aortic incompetence it would seem reasonable to suppose that the difference of reading should show some relationship to the degree of incompetence, which for practical purposes may be considered as measured by the pulse pressure. No parallelism, however, exists between these arm-leg differences and the corresponding degrees of pulse pressure.

5. In the few cases in which this was tried, in the majority the difference of pressure was abolished by repeated recompression, a fact decidedly in favour of the arterial explanation. (In cases of a higher leg reading than that in the arm in arterial disease it has been frequently found that the difference is abolished by such recompression.)

Method of Observation and Apparatus.

This paper being based on observations which were spread over many years, different instruments were used, but these were one or other of the modifications of the Riva-Rocci method—namely, Stanton's instrument, Oliver's compressed air haemomanometer, Martin's instrument, and that of French.

The armlets used were at least 12 cm. breadth, except in a few of the children, in whom an armlet of 10 cm. was used for the arm observations. When not otherwise stated, the armlet for the lower extremity was placed on the calf. In the few cases in which the thigh was used for compression a specially broad armlet (18 cm. broad) was used. All readings were taken on reducing the pressure after obliteration of the pulse. Unless otherwise stated, the tactile method was the one adopted. In the readings by this method the radial artery was used for the upper extremity, the dorsalis pedis or posterior tibial for the

Cases.

	Sex.	Age.	Diagnosis.	Arm Reading.	Leg Reading.	Difference.	Pulse Pressure.	History.	Remarks—Arteries, Pulse, etc.
Adults.				mm.	mm.	mm.			
1	M.	39	Aortic incompetence, (?) abdominal aneurysm	*173	208	35	60 mm. approx.§	Rheumatic fever, syphilis	Arteries thickened; pulse collapsing.
2	M.	53	Aortic incompetence, dilated aorta	209	234	†25	89 mm. approx.§	—	Arteries markedly thickened; collapsing pulse.
				184	200	16			
				184	237	53			
				135	135	0			
3	M.	55	Aortic incompetence, dilated aorta	*182	265	83	106 mm. approx.§	—	Arteries markedly thickened; pulse collapsing.
4	M.	53	Aortic incompetence	195	200	†5	—	Rheumatic fever (recent)	Arteries thickened; pulse collapsing.
				155	190	35			
5	M.	42	Aortic incompetence	142	139	−3	—	—	Arteries thickened; pulse collapsing.
6	F.	39	Aortic incompetence	198	208	10	72 mm.‖	—	Arteries thickened.
				208	242	34			
				207	243	36			
7	M.	32	Aortic incompetence and stenosis	118	215	†97	67 mm.‖	(?) Syphilis	Arteries somewhat thickened; pulse somewhat collapsing; artery full between beats.
8	M.	16	Aortic incompetence and stenosis, mitral incompetence	80	110	†30	—	—	Arteries normal.
9	M.	40	Aortic incompetence and mitral stenosis (?)	143	131 (thigh)	−12	—	—	Arteries normal; pulse collapsing; temperature at or nearly 100° F.
10	M.	31	Aortic incompetence	*143	148 (thigh)	5	99 mm.	No past illnesses	Temperature about 100° F.
11	M.	40	Aortic stenosis and incompetence	128	135 (thigh)	7	95 mm.	—	Arteries markedly thickened.
				154 auditory	180 (thigh) auditory	26			
12	M.	43	Aortic incompetence; myocardial degeneration	160 approx.	180 approx.	20 approx.	—	Rheumatic fever and syphilis	Pulse collapsing; arteries markedly thickened; last observation caused pain.
				*187 approx.	270 approx.	83 approx.			
13	M.	37	Aortic incompetence and stenosis	120	100	−20	40 mm. approx.	—	Arteries markedly thickened; pulse slightly collapsing; artery full between beats.
				120	80	−40			
14	M.	31	Aortic incompetence and stenosis; mitral incompetence	145	145	0	115 mm.	Rheumatism and chorea	Arteries thickened; pulse collapsing.
15	M.	39	Aortic stenosis and incompetence; mitral stenosis and incompetence	115	170	†55	63 mm.	—	Arteries somewhat thickened; pulse slightly collapsing; artery full between beats.
16	M.	70	Aortic incompetence	210 auditory	250 (thigh) auditory	†40	130 mm.	—	Arteries thickened.
				190 auditory	228 (thigh) auditory	38			
Children.									
17	M.	12	Aortic incompetence	*95	120	25	35 mm. approx.	—	Arteries normal; pulse perhaps slightly collapsing.
18	M.	15	Aortic incompetence, mitral stenosis and incompetence	133	122	−11	76 mm. approx.	—	Arteries normal; pulse collapsing.
				119	128	9			
				114	114	0			
19	M.	10	Aortic incompetence, mitral stenosis and incompetence	*122	122	0	58 mm. approx.	Rheumatic fever	Arteries normal; pulse rather collapsing; artery full between beats.
20	M.	13	Aortic stenosis and incompetence, mitral stenosis and incompetence	*107	97	−10	61 mm. approx.	—	Arteries normal; pulse slightly collapsing; artery full between beats.
21	M.	10	Aortic incompetence and stenosis	125	145	20	70 mm.	—	Arteries normal; pulse collapsing; artery full between beats.
22	M.	11	Aortic incompetence	*135	125	−10	—	—	Arteries normal.
23	M.	13	Aortic incompetence and stenosis, mitral stenosis and incompetence	110	135	25	—	—	Arteries normal.
24	M.	12	Aortic incompetence and mitral incompetence	104	108	4	82 mm. approx.	Chorea	Arteries normal. At first observation, pulse not collapsing, compensation fair; at second observation, pulse collapsing, compensation good.
				*110	90	−20			

* Indicates that the arm and leg observations were not made synchronously.
† Indicates that the difference was abolished by recompression.
‡ Indicates that the difference was not abolished by recompression.
§ Method of maximum oscillation for diastolic.
‖ Auditory method, point of disappearance of sound.

lower. Dr. George Oliver's auditory tambour attached to a binaural stethoscope was used for the auditory readings. The tambour for the arm readings was placed at the bend of the elbow, and for those on the lower extremity at the popliteal space.

In the auditory readings the point of appearance of the audible throb was taken as the systolic reading, and unless otherwise stated the point at which the loud note becomes suddenly dull before disappearing was taken as the diastolic reading. In a few of the early auditory readings the diastolic index was taken as the point of disappearance of the sound (Cases 6 and 7), and in the first observations (Cases 1, 2, 3) the approximate visual method of the point of maximum oscillation was used. The pulse pressure was taken as the difference between the systolic and diastolic readings in the arm.

Corresponding observations on the leg and arm are recorded on the same line, and, unless otherwise stated, were made synchronously, one manometer being connected by means of a T-shaped tube with both armlets. Observations of any case on different lines were made on different days. The patients were at rest in the recumbent position, and the results are recorded in millimetres of mercury.

Details.

This paper is based on observations of 24 cases of undoubted and, indeed, well marked aortic incompetence. In 14 of these a difference obtained in the arm and leg readings. In the 10 remaining cases there was either a higher arm than leg reading or there was no difference in favour of the leg reading. Two of the cases which did not show the difference had temperatures of 100° F. or nearly 100° F. at the time of examination. Rolleston,[4] in his observations, found that in two cases temperatures of 101.4° F. and 100.4° F. respectively caused the difference to diminish greatly or to disappear. It is possible, therefore, that the slight degree of fever may have explained the absence of the difference in my two cases, so that I have thought it well to exclude these two cases from the list. This leaves 22 cases to be considered, of which 14 were adults and 8 children of from 15 years downwards. Of these 22 cases, 14 showed the difference, leaving 8 in which the sign did not obtain.

It is to be noted that 10 out of the 14 cases showing the difference had thick arteries (all except Nos. 8, 17, 21, and 23), or of all the 13 cases of the series having thick arteries 10, or all but 3 (Nos. 5, 13, and 14), showed the difference, a much larger proportion than that which obtained in the total number of cases (14 out of 22) all of which had, of course, aortic incompetence. Further, in the 14 adult cases 11 showed the difference, whereas by contrast it was observed only in 3 of the 8 children, in none of whom were any arterial changes found. These two points suggest very strongly the arterial origin of the phenomenon.

In regard to the relationship of the degree of pulse pressure to the arm-leg difference, there was no correspondence between the two. Taking the 6 highest pulse pressures, in 4 of them, Nos. 2, 3, 11, and 16, there was a marked difference, whilst, on the other hand, in the 2 others, Nos. 10 and 14, no appreciable difference was found. In 3 out of 5 cases in which it was tried, the difference of pressure was abolished by repeated recompression, which again is as we have seen in favour of the arterial explanation, and is at variance with Hill's finding aortic regurgitation.

It will be seen, if my results be compared with those of the various writers on this subject that they are similar to those of Heitz, but differ from those of the others, and it may be pointed out that Heitz's conclusions appear to be based, to judge from the published records, upon a considerably larger number of cases than those of the other observers.

Whilst of course I freely acknowledge that the limited number of cases upon which the present paper is based is insufficient to form the basis of general dogmatism, it is certainly quite sufficient to show that the phenomenon is nothing like a constant sign of aortic regurgitation. Finally, I would submit with some insistence that future observations should include in each case a note upon the condition of the arteries, an omission as to which has deprived past records of much of their value.

REFERENCES.

[1] *Heart*, vol. i, p. 73, 1909-10. [2] Ibid., vol. iii, p. 219, 1911-12. [3] *Therapeutic Gazette*, 1910, Third Series, xxxvi, p. 457. [4] *Heart*, vol. iv, No. 1, 1912. [5] BRITISH MEDICAL JOURNAL, March 28th, 1914. [6] *Paris Méd.*, 1917, xxiii, 112-122. [7] Clinical Observations on the Influence of the Vessel Wall on So-called Arterial Blood-Pressure Readings, *Proc. Roy. Soc. Med.*, May, 1909. [8] *Haemodynamik*, Leipzig, 1850.

An Address

ON

ELEMENTARY PSYCHOLOGY IN GENERAL HOSPITAL TEACHING.

DELIVERED BEFORE THE ULSTER MEDICAL SOCIETY, MARCH, 1921.

BY

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IN August, 1920, I was instructed to examine a woman aged between 60 and 70, and report on her mental and general condition; she had had a stroke in 1912 and another two years later. She was bedridden. Both arms and legs were strongly flexed, the knees nearly touching the hips, the heels the hips, and the arms were crossed over the abdomen; she had no control over bowel or bladder; her articulation was very defective, resembling an exaggerated mumbling lisp; orientation for time and space was hopelessly poor; she said she was 43, and that it was the year 1909; her memory was quite unreliable, her ideas extremely limited; she knew nothing about her affairs except that she got a certain sum a week from a deceased sister, and had been robbed of her furniture, and in making these statements she exhibited tearful but short-lived emotion.

I had no difficulty in making a report. In a subsequent letter I was asked whether I could give an opinion as to the time during which this patient had been incapable of managing her affairs, and whether there was any ground for forming an opinion as to what the mental capacity of the patient was likely to be after the seizure in 1912.

In trying to answer these questions I realized that my knowledge was very limited. It could be put into two statements: (1) After a stroke there is mental weakness, which may be of so slight a degree as to be unnoticed, or may amount to well marked secondary dementia, where the patient has returned to second babyhood; and (2) that there is a question how far aphasia meant intellectual incompetence. I answered that it was impossible to form a reliable opinion.

So I turned to our textbooks and to what medical literature I had time to consult. Some simply mentioned the question of examination of the mental condition of our patients, some gave a rough outline, a few lay emphasis on the "cerebral" features of arterio-sclerosis, by which I presume they meant "mental" or "psychic" features. This is the "arteriopathic dementia" of the alienist. It is interesting and instructive to note how even some of our best textbooks do not refer, or refer in an inadequate manner, to the difference between cerebral physiology and psychology. The textbooks on mental diseases are not included in this statement. Many of our manuals of medicine and monographs on the diseases of the nervous system consider elaborately the questions of cerebral pathology and of aphasia; to illustrate the latter subject the pages abound with diagrams which, rather unfortunately, recall from our unconscious memory the forty-seventh proposition of the first book of Euclid, and we are apt to associate with these diagrams the same childlike faith in the definiteness of proof and of absolute reliability that we learned in our boyhood to associate with the famous right-angled triangle; normal or morbid psychology is not touched upon.

Charcot, in his classical clinical lectures, takes up a very interesting attitude: the study of cerebral haemorrhage, he says, forms an introduction to the study of diseases of the encephalon. The sudden tearing of the tissue realizes in some degree the simplicity sought in experiments on animals, but he omits the mental condition. His further lectures were unpublished.

Our later textbooks and manuals on insanity do supply the want; whether in an altogether satisfactory manner or not is a legitimate subject of debate, but the effect of this separation is that the student and most medical men do not attempt to make even an elementary psychological examination of a patient, unless this patient is actually insane, and then only so far as to ascertain whether insanity exists or not. But a patient's mentation is a function of his brain; this function is continually being carried on; it is a function—not perhaps from a vital point of view, but certainly from a social point of view—which is incontestably the most important, and it should not be relegated to an odd half-dozen of lines.

Cerebral physiology is yet very incomplete, and so we should teach the elements of psychology to the student as part of the clinical examination of the most important function. At present it is left to the native wit of the doctor to size the mentality of a patient. Should we not train him in scientific methods? Would we give up our scientific and regular, orderly, means of physical examination because the native wit of Hippocrates enabled him to do so much? Let us rather correlate cerebral physiology and psychology to make as complete an examination of the functioning of the nervous system as our present knowledge allows, and obtain practical aid in the examination of our patients.

An examination of some of our excellent manuals on clinical examination and case-taking showed the same deficiency; the reflex movements of the big toe were strongly in evidence, but the powers of memory, of ideation, the depth of emotion, the occurrence and kind of dreams, and the bias of mind, the powers of expression, of calculation, were passed by unnoticed or barely noticed; Hutchison and Rainy in their *Clinical Methods* give a page on which is printed a special scheme for cases presenting mental symptoms drawn up by Henry Head for use in the wards of a general hospital. A student, however, is told in other places to practise examination on healthy lungs, hearts, urine, etc. Why should he not practise a little normal psychology, and so be better fitted to examine and recognize psychical abnormalities when they present themselves?

A student should have a certain amount of both normal and morbid psychological training before going to the asylum; he will be able to benefit by his training in that

institution; and, in his final undergraduate year and ensuing years of practice, he will be less apt to confuse psycho-neurosis with malingering, congenital defect or bodily disease, and so be enabled to give the proper and right treatment.

A revolution is taking place in this subject of psychology; it may be said to have begun with Freud of Vienna roughly at the commencement of this century. Freud was a physician and was led to his theories by the study of mental affections, but his theories concern a universal problem of psychology. It would be impossible even to attempt a brief explanation of Freud's "unconscious mind," "suppression," "censorship," "conflict," "psycho-analysis," "interpretation of dreams," etc. We should be led into an arid discussion of priorities and interpretations, but undoubtedly much merit and noteworthiness should be attached to his mechanism and the nature of his "mental conflict." Side by side with this psychological change is the great advance in cerebral physiology due to the work of Henry Head and his school in London. Thirdly, we have the enlightened and progressive study of the psycho-neuroses during the war and afterwards. And, lastly, we have the endeavour to correlate all three, as will be seen in the book, *Instinct and the Unconscious*, lately published by Rivers of Cambridge; he tries to show the various aspects of the psycho-neuroses as biological reactions. I shall make no attempt to explain the changes and advances in psychological theories, with the one exception of emphasizing the importance of instincts. The recognition of the nature, number, and power or influence of instincts has perhaps been the greatest change and advance; these instincts have been examined with the greatest care and exactitude, and have been defined with the utmost circumspection. Freud insists on the impulsive, demoniac, illogical nature of much of human thought and the very partial and inadequate way in which consciousness reflects or represents the workings of these impulsive forces, which seem to be the driving power of life. Others have taken up the question, have enlarged the boundaries, and have built an edifice on a surer, steadier, and broader base.

Now let us consider for a moment the later cerebral physiology. Head showed that two forms of sensation—epicritic and protopathic—were present in sensory nerves; in the healing of a cut sensory nerve the protopathic sense returned long before the epicritic; the protopathic is concerned with somewhat painful or pleasurable sensations of heat or cold; it is vague and diffuse; it is conducted by the spinothalamic tract to the optic thalamus. The epicritic is much more discriminating; it is exact, differentiates, and the fibres travel by a separate tract to the cerebral cortex. The optic thalamus is the old brain. The neothallium or cortex is later; it increases in size as we rise in the stages of evolution; it is with the cortex that the epicritic is connected. There are instincts of the protopathic type, and, as summed up by Rivers, they have the "all-or-none" principle in reaction:—

1. There is an absence of discrimination, of appreciation, or of graduation of response;
2. They have the character of reacting to conditions with all energy available;
3. And the character of the responses is immediate and uncontrolled.

These characters all hold good in large measure of the activity of the optic thalamus, the essential nucleus which Head and Gordon Holmes have shown to be the central representation of the protopathic aspect of peripheral sensibility and the essential basis of emotional reaction. The mad flight for safety of an animal is of this type; the instinct reaction for self-preservation is immediate, uncontrolled, with all energy available, and without discrimination; it is a panic. We need but to keep our eyes and ears open in everyday life to recognize examples; books of travel and the better class novel abound in them.

Or the opposite: The mad rush of aggression, bearing down all opposition, regardless of danger, is of the same type. The chance of success in both lies in thoroughness and completeness. In the better class of man we have an instinct reaction of self-preservation in what Rivers calls the "manipulative activity" reaction; the man at once instinctively becomes cool, quick-witted, without sense of fear or danger; he gets wounded and he feels no pain; each highly complex difficulty is met with discriminating quickness of thought; this is a cortical or epicritic instinct reaction for self-preservation, and its success depends on the purity of its cortical nature. If a man "loses his head"—that is, if the epicritic nature of the instinct reaction wanes and the protopathic type interferes—his risks are quadrupled; he has the blind rage of the optic thalamus without its suddenness and full energy.

A good example of the contrast between the two is found in George Eliot's *Romola* (Chapter XXXIV) in the conflict between Tito, young, well nourished, selfish, and with a cool scheming brain, and Baldasarre, old, exhausted by exposure, privations, disease, with fast failing mental powers; the sudden impetuous leap of the latter and his secondary collapse correspond very closely with Rivers's description. Romola's interview with Savonarola in Chapter LIX is a fine instance of a good, educated brain in a noble character acting under the strongest conflict and emotion, but always held in control; a weak cortex and weak nature would have gone into hysterics.

It is not difficult to see the resemblance between a protopathic reaction and a sudden outburst of an hysterical fit, or of mania, and a resemblance also to those cases where soldiers have suddenly taken to flight even into open danger.

Again we are not allowed by the public press just at present to forget that an animal may try to escape by sudden immobility or "shamming dead"; it can be rolled over, touched, and yet not exhibit the faintest movement; it is apparently without feeling; the paralysis, anaesthesia, mutism of hysteria may have the same origin.

In this way Rivers endeavours to correlate the psychology, the latest cerebral physiology, and the pyscho-neuroses; the instincts of the animal of the optic thalamic type become modified in those animals whose cortex has increased in size and complexity; in man, under the stress of war or civil danger, functional diseases in their manifestations hark back to his optic thalamic ancestor.

In passing, I may remark that the war has done two things. Freud made the sex instinct the central and most important factor; he enlarged the use of the word "sexual" to a perfectly absurd extent, and broke through the plain use of words and of facts. The older psychologists were jealous of his innovations and held up to scorn, contempt, and ridicule Freud and his sex theories. The first iconoclastic action of the war was to knock to pieces the supremacy of his sex instinct; the second was to confirm the truth of his mechanism of the unconscious, suppression, psycho-analysis, sublimation, projection, etc. Comparatively few of the neurasthenic soldiers showed any predominant sex instinct; they led the ordinary sex life and never worried about it, except when they got some venereal disease, but the vast majority showed "danger"—that is, "self-preservation and herd instincts," "suppression," "conflicts"; they were treated on these lines and cured; so that Freud's mechanism was established, but his "sex instinct" theory, which might be more in accordance with fact in the highly artificial and effete civil life of Vienna, had to come down from its pinnacle and take its place with the two other main classes of instincts—namely, that of "self-preservation" and that of the "herd."

Again, there has been an enormous increase of public interest in psychology; lay practitioners in psycho-analysis are already beginning to swarm in London; the machinations of many, I am afraid, make for evil, and pander to the erotic vacuity of fashionable life. These charlatans will spread to provincial towns, and will soon be with us, and be adopted by the neurotic cranks of the district. Books are published as scientific treatises, whose illustrations and stories would delight the heart of the prurient pervert; but the higher class papers and reviews have also taken it up in a more legitimate manner.

A book on the psychology of employment, published recently in America, shows how the Americans are open to receive new ideas and improve their methods, and are not above taking lessons from any form of study; it deals with intellectual capacity generally, and emphasizes the two varieties: (1) General intelligence—capacity to benefit by experience and error; (2) specificability.

A third reason why the profession should not be ignorant of the subject is the immediate need for the treatment of the large number of war "neurasthenics," and the still larger number—proportionately increasing as the true

"shell shock" gets well—of the degenerate, work-shy, malingering borderline case, who did no work before the war, as little as possible during the war, and do not intend to work after the war. The Ministry of Pensions has taken the responsibility of these men, and it is our duty to educate ourselves and the public as to how to deal with them; they do much harm to our wounded and war invalids. The war found us well prepared as regards the prevention of infection, moderately prepared as regards the treatment of wounds, but in hopeless ignorance as regards the prevention and treatment of psycho-neuroses. We tolerated before the war in a supercilious manner some practitioners who specialized in this class of patient; a few—but still too many—of these were cranks themselves or quacks who battened on credulity and gave the bad name; but we ourselves were ignorant; we were guided by no scientific principles. The older surgeon looked with contempt on the bonesetter; he has now systematized the knowledge and experience of the bonesetter, and benefited the patient; the analogy is not too strained.

My object is to advocate the introduction of a simple elementary study of psychology, normal and pathological, into the wards of a general hospital, in order to formulate and systematize the instruction that is already given in a somewhat spasmodic and irregular manner; to train students and prepare them so that they will be able to benefit more fully by their attendance in the asylum, and be ready to take up this aspect of their professional life—the examination of a patient for responsibility of his actions, for testamentary capacity, and for the hundred small incidents that occur in our daily professional life, and the treatment of the minor mental ailments that form such a large part of general practice.

OBSTRUCTION BY A BAND IN A LARGE SCROTAL HERNIA.

BY

PHILIP TURNER, M.S., F.R.C.S.,

ASSISTANT SURGEON, GUY'S HOSPITAL.

INTESTINAL obstruction in a hernia, from causes other than constriction of the contents at the neck of the sac, is not of great rarity—I have heard of two such instances in the past year—but the following case presents features of unusual interest:

In September, 1919, I was asked by Dr. J. Thorpe Reckitt to see a case, apparently of strangulated inguinal hernia. The patient was a man, aged 69 years, who had a left inguinal hernia of remarkable size; its maximum length was about twelve inches and its circumference about eighteen inches while the patient was lying down in bed. The hernia had been present for forty years, and for many years—for how many the patient was unable to say—it had been irreducible and of its present size. No truss had ever been worn, but, in spite of its magnitude, the hernia seemed to have caused him singularly little inconvenience. He was able to lead an active life and attend to his business right up to the present illness. Some few years ago the swelling had been tapped by a medical man, presumably under the impression that the scrotal swelling was a hydrocele. No fluid was drawn off, but the patient was unable to say whether anything was injected into the sac.

His illness, which may be said to have started three days before I saw him, commenced with pain and tenderness in the hernia, followed by absolute constipation, neither faeces or flatus being passed. The symptoms at first were apparently not severe, so that he did not send for Dr. Reckitt until the third day, when the pain had extended to the lower part of the abdomen and he had commenced to vomit. When seen during the evening of that day his condition was very grave; the vomiting had persisted and he was then bringing up small quantities of foul brown fluid at frequent intervals. The pulse was not very rapid, being 100 per minute, but was of small volume; the tongue was furred but moist and the eyes were decidedly sunken. The lower part of the abdomen was tender and rigid, but, owing to the presence of much fatty tissue it was not possible to say if there was any distension. It was considered that the hernia was strangulated, with probably gangrene of some of the contents. As it was thought that the patient's life might possibly be saved by relieving the obstruction and tying in a Paul's tube it was decided to operate.

Operation.

An anaesthetic was given and the sac exposed and opened in the usual way. The contents were chiefly small intestine, with a portion of the omentum and a small amount of foul blood-stained fluid. The neck of the sac was very large, and there was no difficulty in passing two fingers through it into the peritoneal cavity; the intestine showed no evidence of constriction, and it became certain that we were not dealing with an ordinary case of strangulated hernia. The omentum was ligatured and excised to allow of investigation of the bowel. It was estimated that about half the total length of small intestine was present in the sac; it was but slightly distended and the serous surface was hyperaemic. At the lower part of the sac a coil about 12 in. in length was found to be black and gangrenous. This was caused by a well-defined, rounded, fibrous band attached at each end to the mesentery, crossing and constricting both the proximal and distal ends of the coil, but having no attachment to the intestine. The gangrenous portion of the gut was sharply defined by the line of constriction, which was very tight, and, in addition, the whole of the affected coil was twisted through an angle of about 180 degrees. The band was situated at least 6 in. below the level of the external abdominal ring, and there was certainly no obstruction at the latter situation. The patient's condition was too bad to allow of a resection, so that, after the band had been divided, the gangrenous coil was drawn into the wound, incised, and Paul's tubes were tied in. The upper three-fourths of the wound were then closed and the patient returned to bed. However, he did not rally, and died in about three hours.

The nature of the band which caused the obstruction is doubtful. It was a definite, rounded, cord-like structure, attached at each end to the mesentery, but as it had no attachment to the intestine it can scarcely have been derived from a Meckel's diverticulum, though the gangrenous portion of intestine was probably ileum. It certainly had no connexion with the inguinal canal or the external abdominal ring, and there was nothing to suggest that it was derived from the omentum, which was not adherent to either the gut or the sac wall. No other bands or adhesions were noticed, and, indeed, I think that the reason that the hernia was irreducible was on account of its size and long duration, so that the capacity of the abdominal cavity was insufficient to accommodate its contents; at any rate there was hindrance to reduction at the neck of the sac, and no adhesion between the sac wall and contents.

One cannot help thinking that the band may have been inflammatory in origin, and that it may have followed upon the tapping which had been performed some years before. When I saw the patient there was no suspicion of a hydrocele, and at the operation there was only a small amount of fluid in the sac. Under these circumstances it is quite possible that the trocar and cannula may have inflicted some injury upon the mesentery, and that, as the result of the inflammation thus set up, the band was formed. In support of this view it may be pointed out that the situation of the band was about the level which would be selected for the introduction of the trocar and cannula in tapping a hydrocele. Whatever the cause of the band may have been, it is certainly a very unusual occurrence for a portion of the contents of a hernia to be obstructed in this way.

THE RADICAL CURE OF VARICOCELE.

BY

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SOME six years ago[1] I called attention to a simple and exact method of excising the eight or ten varicose spermatic veins (the pampiniform plexus) which are suspended, in loose areolar tissue, mostly in front of the vas deferens. It is essential to punctuate the fact that surgical intervention must be exclusively confined to removal of this bundle of veins, otherwise disastrous consequences are certain to ensue—for example, gangrene or atrophy of testis. I have seen many examples of the latter, and recently a very painful instance of the former—a gentleman who, just before embarking for Buenos Aires, was operated on by a well known English surgeon; on his arrival here he was suffering from marked toxaemia and a foul septic scrotum. I had to remove a gangrenous

testicle and found the cord itself tightly constricted in the ligature.

I cannot help thinking that operative textbooks are largely responsible for these mishaps by recommending procedures possessing needless magnification of perspective which often results in anatomical obfuscation—too much exposure and too much dissection frequently produce too much surgery. The essence of the thing is first to realize that the pampiniform plexus is situated anteriorly to the other structures of the cord, and then, before making the incision, to take care to secure it in that position—always remembering that the object is to remove a superficial bunch of varicose veins endowed with a definite topographical site, which may be easily confused by over-dissection and unnecessary manipulation of the part.

The operation which I have employed for some years past is as follows:

1. This clump of varicose veins is seized horizontally between the left thumb and left index finger. A pause is made, to be certain that the cord lies free and well posterior to the gripping fingers. This is verified by palpation with the right thumb and right index finger, and I generally demonstrate the position of the cord to some onlooker by rolling it close under the skin for inspection.
2. A two-inch incision is then made over the gripped projection; with a few horizontal strokes of the knife the infundibuliform fascia is divided, the offending plexus pops into the wound, and with a few more touches it is completely exposed through the whole length of incision.
3. These veins are then caught in mass by an artery forceps, which is handed to an assistant, who pulls it vertically upwards so as to bring the underlying connective tissue into view.
4. A stab of the scalpel makes an opening through this tissue sufficient for the introduction of the right index finger; this done, the left-hand grip is released, and the left index finger is instantly inserted alongside of the right one beneath the bundle of veins.
5. The pampiniform plexus is now freely separated from its bed by the two fingers (one working up and the other down) and as many inches as may be considered necessary are easily and rapidly isolated.
6. A catgut ligature is applied above and below, the intervening segment (usually 2 to 4 in.) of plexus is excised; the ends of ligatures are then tied so as to approximate stumps and to elevate scrotum, and the skin wound is united by a few catgut stitches, leaving room at the upper and lower angles for the passage of a slender wisp of silkworm gut—a precautionary haemorrhagic drain which I employ in all scrotal wounds.

The facility with which this little operation may be done can be estimated by the time occupied in its performance[2]—one to three minutes. The results warrant its commendation to others.

REFERENCES.
[1] *Lancet*, October 24th, 1914. [2] "Operating to the Clock," BRITISH MEDICAL JOURNAL, December 21st, 1918.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

LIGATIONS OF THE LEFT SUBCLAVIAN ARTERY.

IN the JOURNAL of April 16th, under the above heading, the possibility is suggested that some surgeons may have performed this operation without having recorded the fact in print. That this supposition is correct in at least one instance is borne out by the following case on which I operated during the summer of 1918 in France. No doubt other surgeons during the great war had somewhat similar cases.

A soldier was received at a base hospital with the diagnosis of gunshot wound of the shoulder. He complained of pain in the neck. The wound was discovered only after careful search, and consisted of a tiny scab in the neck, above the inner end of the left clavicle, about an eighth of an inch in diameter. There was no other physical sign except some tenderness on deep pressure. Had he not consistently complained of pain, and at times given the impression of undoubted suffering, he would have been sent to rejoin his unit almost immediately. However, a few days after admission there appeared gradually a small red swelling, hard and tender to the touch, in the neck just behind the inner end of the left clavicle. There was no pulsation. The classical error was committed, and "abscess" diagnosed. An *x*-ray plate revealed a tiny fragment of shell about the same size as the wound, deeply situated in the region of the swelling.

A small superficial incision was made over the red area, and a pair of artery forceps pushed deeply into the supposed abscess. No pus appeared. The finger was then introduced, and, the deep parts of a small cavity being disturbed, there followed an alarming gush of blood, easily controlled, however, by pressure of the tip of the finger on the pulsating artery, in the anterior wall of which there apparently was a tiny wound.

The remaining part of the operation was performed with the tip of the left index finger on the artery at the bottom of the wound, an assistant retracting and ligating, an orderly pulling the left arm downwards and the anaesthetist forcing the head firmly towards the right shoulder. A long incision was made transversely across the neck, just above the clavicle and including the original opening. The dissection which followed was naturally long and tedious, punctuated by various "alarums and excursions." The clavicular head of the sterno-mastoid was cut across. The suprascapular artery and various veins were ligatured and divided. The inner margin of the scalenus anticus and the thyroid axis artery were recognized. The latter was followed to its origin from the subclavian, and the finger-tip on the puncture was just internal to the point of origin. With as little disturbance of the subclavian as possible, and after a little blunt dissection, two pairs of artery forceps were applied to the artery close together, and these occluded the puncture and controlled the haemorrhage. An aneurysm needle was passed round the artery, first immediately internal to and then immediately external to the forceps, and the vessel was ligated in two places with thick catgut.

The wound was stitched and a small drainage tube was left in position for twenty-four hours. The arm was wrapped in cotton-wool and placed in a modified Thomas's arm-splint in the horizontal position. No complications arose, the wound healed by first intention, and the patient was evacuated to England within three weeks.

Birmingham. W. GEMMILL, F.R.C.S.

DERMATITIS CAUSED BY BITTER ORANGE.

OCCUPATIONAL dermatitis due to the handling of certain flowers and plants is well known, but cases are not very common, so that they may be rather difficult to recognize. In Sequeira's *Diseases of the Skin* is given a list of over forty plants which are known to have caused dermatitis. Among them is the bitter orange, and several cases of this form of dermatitis recently came under my notice among girls engaged in peeling bitter oranges in a jam factory.

The most marked case was that of a girl, aged 25, who suffered from a very acute dermatitis of the fingers, hands, and forearms, and also of the face. There was intense erythema and much swelling, especially of the hands and forearms, the parts most exposed to the juice. There were numerous small vesicles, a little larger than the size of a pin-head, all over the affected areas. I put the patient to bed for one week and applied a lotion of zinc carbonate, pulv. calaminae and aq. calcis, which proved very effective, the inflammation entirely disappearing after ten days. Idiosyncrasy evidently plays a considerable part in the condition, as in spite of all precautions the girl in question had ultimately to give up the work.

Glasgow. F. ANDERSON MURRAY, M.D.

A STELE in memory of the internes of the Paris hospitals who died on active service during the war has been erected at the Hôtel-Dieu. On it are inscribed 72 names; it is ornamented by a bas-relief showing a first-aid post.

AT the meeting of the Congrès de Chirurgie at Strasbourg on October 3rd, the President, Professor E. Boeckel, will be presented with a medal in recognition of his patriotism during the German occupation.

THE tuberculosis mortality at Rio de Janeiro, which in 1903 was 4.43 per 1,000, rose to 5.53 in 1918, and is now 10 per 1,000. Amaury de Medeiros, general secretary of the Association for Combating Tuberculosis in Brazil, estimates the annual number of deaths from tuberculosis in Brazil at 60,000, and the number of cases at 600,000.

Reviews.

AN ATLAS OF OBSTETRICS.

IN his *Atlas of Normal Labour*[1] Dr. DRUMMOND ROBINSON has reproduced a large number (405 to be exact) of the diagrams and photographs which went towards the constitution of the "animated diagrams" and motion photographs introduced by him to the profession a year or more ago. It will be recollected that he demonstrated these before a meeting of the Obstetrical and Gynaecological Section of the Royal Society of Medicine in November, 1919, and since then they have been shown in other centres. At that time (November 15th, 1919) we referred to the exhibition of the films, and generally to the use of the cinematograph in medical teaching. Now it remains only to say that the publication of the atlas will help to convey to many who have not had the opportunity of seeing the pictures in motion some idea of the nature of the teaching which can thus be given. Present prices make the purchase or even the hire of the films possible only for large classes, but the salient features may be picked out in the atlas in the tutorial class and made the pegs upon which to hang much practical teaching.

The *Atlas* affords an interesting opportunity of studying at leisure the individual pictures, and so minute are the differences between the consecutive diagrams of a series (and probably they are far from being consecutive in the film) that one is lost in admiration of the care and patience on the part of the author and artist which must have gone to make them so successful and (in the case of the diagrams) so lifelike. The photographs, like all surgical photographs, suffer from the obscuration of the field by blood, which appears a dense black in colour. Apart from this unavoidable drawback they are excellent.

This is a book to be welcomed—perhaps not so much for what it contains as for what it is. For it is a pioneer book, and years hence will be looked back upon with interest by those who regard the cinematograph as a regular part of the stock-in-trade of the teacher of the practical branches of medicine and surgery.

INJURIES OF PERIPHERAL NERVES.

AN able exposition of what is to be regarded as representative of the work of the German school of surgeons on injuries of peripheral nerves has been issued from the surgical clinic of the university of Göttingen. The author, Dr. WALTHER LEHMANN, has dealt with the subject from its civilian and military aspects, but as in all countries, the experiences of war surgery are rightly allowed to dominate the whole essay.[2] It is interesting to note the complete absence of any reference to the work done in countries other than the Central Powers, although a very extensive bibliography is included. This omission is probably an advantage, as it allows the reader to formulate a sure opinion as to the attitude of the German school towards this important section of reconstructive surgery, and to make comparison between it and that of the French and British surgeons and neurologists. We arrive at the general conclusion that, allowing for minor differences, this surgical field has developed along parallel lines in all countries.

A short but clear account is given of the main principles involved in the healing of nerves, and of the pathogenesis and the symptomatology of nerve injuries. It is stated quite simply, but without undue dogmatizing, that recent work has strengthened the peripheral theory of regeneration, and that the constant topographical anatomy of peripheral nerves established by Stoffel has not been confirmed by the work of Borchardt and others.

In discussing the operative repair of injured nerves the author emphasizes the reasonableness of a conservative attitude, and in lesions of the complete anatomical type, where nerve suture is indicated, he is insistent on the necessity of obtaining end-to-end apposition at all costs, even if the line of section of the nerve stumps passes through tissue which is far from ideal. The operations of nerve grafting, tubulization, repair by flaps, and anastomosis are dealt with fairly in view of the isolated reported successes, but one is left in no doubt as to the general consensus of opinion in Germany on their inapplicability in practical nerve surgery. In discussing the prognosis of nerve repair emphasis is laid on the superiority of the regenerative process in young people, and this is assumed, although without any statistical support, to be one of the determining factors. Stress is laid also on the importance of early suture, and this view is supported by conclusive statistics from the civilian and war literature.

The available statistics of recovery after suture in warfare injuries are comparatively few in Germany, and the author adopts a pessimistic tone as to the general chances of adequate recovery, except in the case of the musculospiral nerve. Secondary re-exploration for failures is not considered worth while, except where the previous operation was a neurolysis, and resection and suture is indicated as a primary measure. The value of alternative operations in irreparable injuries is discussed lucidly, and considerable space is allotted to a technical description of the tendon transplantation operation for irreparable musculo-spiral injuries as introduced by Perthes. In this, tenodesis of the wrist is an essential step, and the operation differs considerably from the classical British operation, which has never been improved upon in any country.

This work is well illustrated, and British readers will be grateful for a simplicity of style long considered to be an unusual feature of Teutonic surgical literature. In some ways it is probably the best balanced essay on this subject which has yet been produced, and it can be recommended to the serious attention of all surgeons who are interested in this particular field.

PARTIAL OPERATIONS ON THE PROSTATE.

DR. LIONEL ESCAUDE is a disciple of Luys and an enthusiastic advocate of the latter's treatment of hypertrophy of the prostate by "forage." His publication *Le Forage de la Prostate*[3] begins with a historical summary of our knowledge on the subject of prostatic hypertrophy. In it special stress is laid on the frequency with which a prostatic bar constitutes the only obstacle to micturition. By the destruction of this bar a free outlet is provided for the passage of the urine. After passing in review the various partial operations, such as those of Bottini and Goldschmidt, which have been advocated for enlargement of the prostate, the author describes in detail the technique of Luys. The work of destruction is carried out through a Luys's direct cystoscope by means of a special electrode connected with a diathermy apparatus. The precise form of apparatus recommended by the author is that of D'Arsonval, which is simple and makes it possible to regulate accurately the intensity of the current. The technique of Luys's operation is well described, the text being reinforced by the addition of excellent illustrations. The author regards as contra-indications to the method the presence of sepsis or the existence of a great enlargement of the entire prostate. He states that the method is specially applicable to younger men showing very little change except the existence of a prostatic bar, and also to old cases with dangerous involvement of the kidneys. In only three cases out of a very large series did difficulties of micturition recur, and in these further treatment by means of "forage" sufficed to remove their troubles. The book concludes with details of 63 cases treated by these means. An analysis of the first 49 showed that the following types of operation were required: In 20 cases the removal of the prostatic bar, in 2 cases the treatment of the lateral lobes only, in 27 cases the removal of the bar associated with treatment of the lateral lobes. In 90 per cent. of the cases excellent results were obtained, frequency, pain and difficulty entirely disappearing. In 6 of the cases treatment had to be given up on account of the greatness of the enlargement. Altogether the book furnishes an excellent monograph on the subject of partial operations on the prostate. Although the author is an enthusiast, he nevertheless treats the subject in a fair spirit.

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[1] *An Atlas of Normal Labour.* By G. Drummond Robinson, M.D. London: Wm. Heinemann (Medical Books), Ltd. 1920. (Double cr. 8vo, pp. 104; 405 figures. 25s. net.)

[2] *Die Chirurgie der peripheren Nervenverletzungen, mit besonderer Berücksichtigung der Kriegs Nervenverletzungen.* By Privat docent Dr. Walther Lehmann. Berlin and Vienna: Urban and Schwarzenberg. 1921. (Sup. roy. 8vo, pp. 283; 66 figures, 3 plates. M. 104.)

[3] *Le Forage de la Prostate, méthode de Luys.* By Dr. L. Escaudé. Mulhouse: S.A. des Établissement d'Imprimerie A. Herbelin. 1921. (Roy. 8vo, pp. 102; 26 figures.)

ANAESTHETICS.

The American Year Book of Anesthesia and Analgesia[4] contains some valuable papers on physiological questions besides a number of contributions dealing with purely clinical matters. The latter are very largely concerned with anaesthetics in military surgery and have been put before us comparatively recently by many writers, including the authors represented in the *Year Book*. Among the other clinical contributions is a valuable paper from the Mayo Clinic by F. A. Willus. Although the number of cases dealt with is not very great, the accurate and detailed observations give weight to the definite opinions expressed. Willus deals with the operative risk in heart lesions under anaesthesia. His cases are classified in six groups—auricular fibrillation, auricular flutter, impaired auriculo-ventricular conduction, impaired intraventricular conduction, mitral stenosis, and aortic lesions. They include "the first proved case of flutter coming to operation." In his summary the author states that "the general tendency is to require too great a margin of cardiac safety in surgical work." F. C. Richardson also writes on heart lesions in relation to anaesthesia. He deprecates the use of scopolamine and thinks that spinal analgesia should not be used in any patient who cannot stand a temporary fall in blood pressure of 50 per cent. "More heart cases require rest after the operation than require stimulatives" is one of his conclusions. Embley contributes a paper on the physio-pharmacology of ethyl chloride, proving experimentally the lowering of blood pressure by this drug and its effect on circulation through the vagus and peripheral dilatation. The importance of temperature in relation to anaesthesia is treated by Shipway and Pembrey, whose work has already been fully recorded in this country. Davis and McCarty, discussing the relative value of so-called warmed and unwarmed ether vapour, are diametrically opposed in some of their conclusions to the opinions of the above-mentioned observers. Crile's paper on an experimental research into the nature of nitrous oxide and ether anaesthesia contains his views on acidosis and anaesthesia, which are well known. The sitting position in nose and throat surgery, always a favourite with some operators in Great Britain, receives reasoned support from Denman and McKesson and W. H. Roberts. These articles are elaborately illustrated. Blood changes under anaesthesia and circulatory disturbances under anaesthesia are the subject of a number of good papers from Mann, Casto, Polak, and others, and low levels of carbon dioxide and alkali during ether anaesthesia are discussed by Yandell Henderson. The volume covers a wide field of work, and contains much of interest both to the practical anaesthetist and to the laboratory worker.

In his *Précis de Rachianesthésie générale*,[5] G. LE FILLIATRE gives an admirably clear account of his method of spinal anaesthesia, and of the anatomical and physiological grounds on which he has based the procedure. His plan is fundamentally different from the usual spinal analgesia. He does not aim at a local influence but at a general paralysis of all the posterior roots. This he achieves by the use of a dilute solution of cocaine (1 in 50) which he employs in a manner that is, according to his account and experience, free from risk. Cocaine, of course, in ordinary spinal work has long been given up as too dangerous. Le Filliatre maintains that all risk in spinal injection and all serious conditions following an injection are due to hypertension of the cerebro-spinal fluid. This is caused by excessive secretion due to the introduction of a liquid which irritates the arachnoid membrane. He avoids this hypertension by first of all allowing 25 to 30 c.cm. of the cerebro-spinal fluid to escape before he makes his injection, and secondly, by using an injection of dilute cocaine solution in a particular manner. This manner is described under the term *barbotage* (*barboter*—to dabble or paddle). It consists in allowing the syringe to fill again after the injection has been made, then reinjecting this amount of cerebro-spinal fluid, then allowing it to fill the syringe again, and then reinjecting once more. In this way his original dose of dilute cocaine (3 to 6 cg. of cocaine in a 1 in 50 solution) is still further diluted with cerebro-spinal fluid before it is diffused. The spot chosen for the puncture is the lumbo-sacral space, the interval between the fifth lumbar and first sacral spinous processes. Here he finds the greatest diameter antero-posteriorly of the subarachnoid space, and the least chance of damaging nerves which are here closely related to the walls of the space, not freely passing through it. A preliminary injection of "hyposesthésine," which contains scopolamine, morphine, strychnine, and sparteine, is an essential part of the method. Chemically pure cocaine hydrochloride is used, and the solution is either made at the time with sterilized distilled water or obtained from ampoules containing 6 cg. of cocaine. This dose gives an anaesthesia of the upper regions of the body, including the head, lasting three-quarters of an hour to one hour. The *Précis* is very clearly printed and the illustrations are both artistic and helpful.

[4] *The American Year Book of Anesthesia and Analgesia, 1917–1918.* Edited by F. H. McMechan, A.M., M.D. New York City: Surgery Publishing Co. 1921. (Demy 4to, pp. 483; 175 figures. 10 dols.)

[5] *Précis de Rachianesthésie.* By G. le Filliatre. Paris: Librairie E. le François. 1921. (Imp. 16mo, pp. 125; 29 figures. Fr. 8; post free, Fr. 8.80).

LUCIANI'S "HUMAN PHYSIOLOGY."

THE fifth and final instalment of the English translation of the late Professor LUIGI LUCIANI'S standard work on *Human Physiology*[6] has been edited by Professor M. S. Pembrey, and appropriately so, for it deals with metabolism, temperature, reproduction, the stages of life and death, and the races of mankind. The first volume of this translation appeared ten years ago, the second in 1913, the third in 1915, the fourth in 1917, and the final one now sees the light nearly two years after the distinguished author's death in his eightieth year on June 23rd, 1919. The disadvantages of this delayed publication are obvious, and no doubt are in part contingent on the great war, but the translation has been fortunate in its editors—Dr. M. Camis, of Pisa, responsible for the first and second volumes, and Dr. Gordon Holmes for the instalments on the muscular and nervous systems and the sense organs. In our previous reviews the excellence of Miss Frances Welby's translation, which recalls the charming style of the late Sir Michael Foster's textbook, has been emphasized, and, although the name of the translator of the final volume is not revealed, the high standard thus set up has been well maintained.

The history of experimental metabolism is sketched from 1614, when Sanctorius's book, *De Medicina Statica Aphorismi*, appeared at Padua. As they are not described elsewhere the editor has added a brief note on vitamins, but has referred the reader to Professor Hopkins's papers and the Medical Research Council's special report series for further information. The chapter on the theory of human nutrition contains a full description of Chittenden's observations, including those on the late Horace Fletcher, who maintained his health and weight on less than half the daily protein intake as estimated by Voit, and their importance as an argument for economy in nutrition is emphasized. The view put forward long ago by the late Sir Henry Halford in his essay on "The Climacteric Disease," that in males there is a critical period of from one to four years corresponding to the menopause in women, and in 1910 attributed by Mendel to diminished secretion (? internal or external) of the generative glands, is dismissed, on the ground that of the observations upon which it rests a large proportion can be explained as casual morbid symptoms arising from causes quite distinct from those suggested by Mendel. After a full and fair presentation of Metchnikoff's well known conception of the harmful effects of enterogenous bacterial toxins and macrophages, it is shown that old age is not a morbid process due to auto-intoxication, and that it is, therefore, useless and erroneous to expect that fermented milk and hygienic precepts, excellent as they may be in themselves, will prevent the inevitable process of physiological involution.

There is an interesting historical summary of the problem of death; life and death are not separated from each other by any exact boundary, and, in spite of much research, the precise moment of death cannot be fixed in single tissues except by rigor mortis in the muscles. The immediate cause of death is always intrinsic to the

[6] *Human Physiology.* By Professor Luigi Luciani, Director of the Physiological Institute of the Royal University of Rome, with a Preface by Professor J. N. Langley, F.R.S. Vol. V: Metabolism, Temperature, Reproduction, etc. Edited by Professor M. S. Pembrey. London: Macmillan and Co. (Med. 8vo, pp. 422; 158 figures. 30s.)

organism as a whole, even when brought about by some external agency, but is extrinsic to the elements of a large number of the tissues, being due to functional failure of the organs and tissues essential to life, and spreading from them, so that all the parts of the body do not die at the same time. The last chapter, dealing with ethnology and anthropology, has been contributed by Professor S. Baglioni, and contains some excellent photographs of the different human races. The illustrations, a number of them coloured, and the general get-up of the work, are alike admirable.

LUNACY IN INDIA.

DR. A. W. OVERBECK-WRIGHT, the author of *Lunacy in India*,[7] is the Medical Superintendent of the Agra Asylum, and Lecturer on Mental Diseases to King George's Medical College, Lucknow. He has had a wide and varied knowledge of the East during a period of nineteen years, and thus writes on a subject in respect to which he has had a vast experience. While his book contains some details of general psychiatric interest its title is perhaps not quite expressive of its aims, as it is primarily a textbook designed for the use of the practitioner in India. It contains the usual subject-matter of the conventional textbook, together with an account of special legal points and methods of certification peculiar to the country to which it refers.

The provision for the suitable treatment of the insane in India is evidently far from adequate, since the author states that in an area with 67,836 insane there is only asylum accommodation for 7,234 patients. After naming the reasons for this deficiency, he expresses the hope that local sects and bodies will form institutions of their own as they become more enlightened as to the nature and causation of insanity. In the Census Report for 1911 the proportion of insane to general population is noted as 26 to 27 per 100,000, a figure which compares well with that of 364 per 100,000 for England and Wales. The difference is, however, more apparent than real, as the Indian statistics do not include the weak-minded, and for this and other reasons an accurate survey would probably approximate much more closely to the English percentage. The author raises many points of interest, and amongst them he notes that in India the use of opium, a drug which is there usually taken in pilular form, does not produce any conspicuously evil effects. There is no tendency to the marked mental and physical decay which is observed so commonly amongst those who smoke it, or who take it by injection in the form of morphine. Cases of insanity due to its consumption are practically unknown.

The section devoted to clinical psychiatry is well written, and the author lays stress on the physical aspects of mental disorder. He follows the classification of Dr. Lewis C. Bruce, with whose views he is in accord as to the importance of toxic factors in the production of many forms of insanity. The various clinical groups are described in detail and illustrated throughout by reference to actual cases. We can thoroughly recommend this book, which would seem to meet a definite need. The practitioner in India will find in it a reliable guide in dealing with cases of mental disorder in both their legal and medical aspects.

"THE MEDICAL ANNUAL."

The Medical Annual,[8] now in its thirty-ninth year, fills a niche of its own in the medical library. It is the sort of book that one likes to have at hand and into which one can dip at any time—for a few minutes or for an evening—with pleasure and with profit. The first part contains a dictionary of materia medica and therapeutics by Dr. Frank J. Charteris, and although he finds that "the year under review has not been fruitful in important work" in therapeutics, there are useful notes on protein therapy and other subjects. Included also in this part is a concise review by Dr. Thurstan Holland of developments in radiography and electro-therapeutics. The second part of the *Annual* is a dictionary of treatment, composed of numerous notes and articles summarizing medical and surgical progress in 1920 by some thirty contributors. Among the most interesting are those on deficiency diseases by Dr. J. A. Nixon; on the blood by Dr. O. C. Gruner, which is illustrated by some remarkable coloured diagrams; on psychological medicine by Dr. J. A. Hadfield, which gives a sane and readable account of psychotherapy; and on encephalitis lethargica by Dr. Ramsay Hunt, which covers the most recent researches on this disease. The article on orthopaedic surgery by Dr. Fred. H. Albee and Dr. R. F. Carter of New York is an admirable and well illustrated review, which does not over-emphasize, but does not suppress, the personal opinions of the authors. A useful survey of recent work on the surgery of the stomach is contributed by Mr. James Sherren. To simplify reference for readers all advertising matter has this year been removed from between the title-page and the body of the work. At the end of the volume are useful lists of new medical preparations and appliances, the principal medical works published during the year, medical institutions, sanatoriums, and nursing homes, and the principal British spas. There is also an official and trade directory, which includes lists of the medical and scientific societies and periodicals. The volume is well illustrated, in black and white and colour, and admirably indexed.

THE ANNALS OF MEDICAL HISTORY.

THE first part of Volume III of *The Annals of Medical History*,[9] containing nine interesting articles, editorials, notes and book reviews, sets a standard of printing and reproduction of illustrations that must compel our admiration and envy. The opening article by Dr. J. Collins Warren on the collection of the Boston Phrenological Society, which flourished for ten years, being founded on the evening of the funeral of Spurzheim (1776–1832), who died in Boston from typhoid fever, endorses the growing modern opinion that, though much obscured by their advocacy of phrenology, Gall and Spurzheim's painstaking work really entitles them to a place among the pioneers of research leading up to the modern conception of cerebral function. Dr. L. M. Griffiths, of Bristol, writing on Shakespeare and the practice of medicine, shows that the extravagant claims for his insight into matters medical cannot be allowed, and that the statement that he always paid respect to the profession is not borne out by his references. An ancient Egyptian prescription for hysteria on an ostracon in the Metropolitan Museum of Art, New York, dating from about 1500 B.C., is described by Dr. I. H. Coriat, and this article is followed by Dr. H. B. Jacobs's address to graduating nurses on Elizabeth Fry, Pastor Fliedner, and Florence Nightingale. Dr. J. C. Hemmeter gives an account of Leonardo da Vinci as a scientist, and Dr. J. H. Skavlem deals with the scientific life of Thomas Bartholin. Dr. D. A. Wells rightly says that Sir William Osler's life-story may well prove a benediction to those in the daily grind who seek equanimity of soul, and that, as a great man has been defined as several men in one, he finds in Osler three—the man of science, the man of literature, and the man of philosophy. Short articles on an Assyro Babylonian treatise on diseases of the male genito-urinary organs and on the giving of medical degrees in the Middle Ages by other than academic authority are contributed by Dr. E. Podolsky and by Dr. H. Friedenwald. Among the book reviews there is a full and eulogistic notice of Dr. R. Hingston Fox's *Dr. John Fothergill and His Friends*, which was reviewed in our columns on June 14th, 1919, p. 739. The portrait on the cover of this number of the *Annals* is one of Raymond Vieussens (1634–1713) from Montpellier, provided by Dr. C. Greene Cumston, who corrects the oft-repeated error that this famous anatomist was a professor of the subject.

NOTES ON BOOKS.

The New Pocket Medical Formulary,[10] by Dr. W. E. FITCH, is a compendium of prescriptions, diet lists, tables of differential diagnoses, dose lists, and similar items, intended for the physician, student, and pharmacist. The little book is now in its third edition, so that it has evidently appealed successfully to the public for whom it is intended, and many of its formulae are certainly valuable. But when, in a volume published in the year 1921, we read in

[7] *Lunacy in India*. By A. W. Overbeck-Wright, M.D. (Psych. Med.), B.Ch., D.P.H., Major I.M.S. London: Baillière, Tindall, and Cox. 1921. (Demy 8vo, pp. x + 406. 21s. net.)

[8] *The Medical Annual*. Thirty-ninth year. Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1921. (Demy 8vo, pp. 724; 40 plates, 134 figures. 20s. net.)

[9] *Annals of Medical History*. Vol. iii, No. 1, pages 1-96. Edited by Francis R. Packard, M.D. March, 1921. New York: Paul B. Hoeber. Subscription 8 dollars; single numbers 2.50 dollars.

[10] *The New Pocket Medical Formulary*. By W. E. Fitch, M.D. Third edition, revised. Philadelphia: F. A. Davis Co. 1921. (Fcap. 8vo, pp. 480; one illustration. 2.50 dols. net.)

the paragraph devoted to the subject "Peritonitis" that "the patient must be kept under the influence of oplates for two days at least," we are a little apt to overlook many of the other merits of the volume.

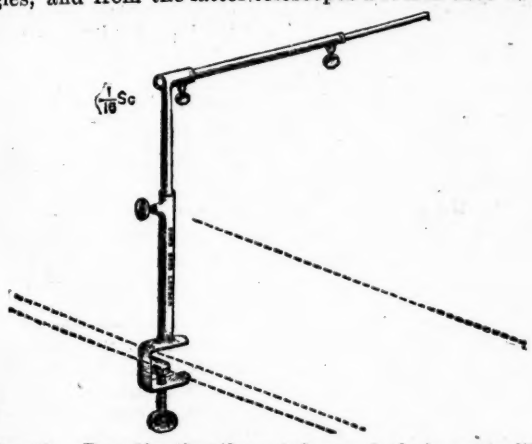
A surprisingly large number of scientific workers are unable even to join a glass tube or make a T-piece that will not crack spontaneously, and it is to them that the *Handbook of Laboratory Glass-blowing*,[11] by Mr. BERNARD BOLAS, is addressed. A complete outline of the methods used in making commercial apparatus is not attempted, but by following its many valuable directions and hints the student should achieve increasing success in his efforts to manipulate glass in the laboratory.

[11] *A Handbook of Laboratory Glass-blowing.* By B. D. Bolas. With numerous diagrams in the text by N. Bolas. London: G Routledge and Sons, Ltd. 1921. (Cr. 8vo, pp. 112; 17 figures. 3s. 6d. net.)

APPLIANCES AND PREPARATIONS.

An Anaesthetist's Screen.

DR. C. A. STIDSTON (Wolverhampton) writes: The following is the description of an anaesthetist's screen which I have recently devised. It consists of an upright tube 11 in. high, which can be screwed firmly on to any table; out of this telescopes a second tube 10 in. in length, on to which another tube 13 in. in length screws at right angles, and from the latter telescopes a fourth tube 21 in.



in length. By adjusting these tubes and their controlling screws in a vertical and horizontal direction a towel rail from 11 in. to 20 in. in height and 14 in. to 36 in. in length can be fixed at any angle across the patient's body.

While primarily intended for use in operations on the neck and chest under general anaesthesia, the screen can be used also for operations on all parts of the body below the head under local anaesthesia. The component parts are light in weight and pack easily into a small compass. The screen has been made by Messrs. Down Bros., St. Thomas's Street, Borough, S.E.

PHYSICAL SCIENCE AND THE LIVING ORGANISM.*

BY

A. V. HILL, Sc.D., F.R.S.,

PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF MANCHESTER.

THIS lecture is meant to deal more with the general spirit than with the precise details of scientific methods applied to the problems of the living creature. Thirty or forty years ago a speaker on this subject might have tried to convince his audience of the advantages of a materialistic philosophy of life. If he had not done that, he would probably have "sided with the angels," and attempted to persuade them that the orthodox Christian faith was a sufficient account of the mysteries of life. It is only ten years ago that I attended a crowded lecture at Jena, in which William Ostwald the chemist, incited by Ernst Haeckel the biologist, reduced the whole world, conscious and unconscious, to manifestations and transformation of energy. Mine is a much humbler rôle. I shall not try to convince you that you and I are merely complicated systems of electrons, whirling away for a little while and in a moderately stable manner, on the road leading from the nothing whence we came to the nothing whither we go. I shall not attempt to mystify you, as Haeckel did our fathers, with the blessed word "protoplasm." Neither shall I ask you to believe that the consciousness which we call *You* and I is merely an elaborate and convenient mechanism designed by natural selection to render our journey on that road a little longer and more comfortable, and our end less sudden. Nor shall I try to persuade you that intellect, goodness, beauty, and all the things that men strive after, are nothing but general relations of a physical universe, evolved somehow to secure the survival of the human species. Indeed, I want to persuade you of nothing more romantic than the advantages of exact scientific methods of studying the behaviour of the living creature.

The living creature is a very strange thing. Here it is in a physical, material, mechanical, chemical universe showing the most extreme dependence on physical conditions. It dies if it be frozen, or boiled, or deprived of food; it does not like strong acids, or ultra-violet light, or x rays, or trivalent positive ions; its properties depend to a most extraordinary degree on those of water; it conducts electricity; it obeys the laws of motion, of the conservation of energy, of the conservation of mass; and yet at the same time it shows, in its simplest forms, a complexity, an apparent purposefulness, an individuality, defying any physical hypothesis. One could treat a chemical theory of consciousness, or a physical theory of heredity, or a mechanical theory of intelligence, only one degree more seriously than the instruments recently designed by Mr. Edison for facilitating telephonic communication with the next world. And yet, deprive the brain of oxygen for a few seconds and consciousness is gone; remove the thyroid gland and a beautiful and intelligent child becomes a hideous imbecile; subject the egg-cell of some species to an appropriate salt solution and an individual will develop without a father. The absence of certain chemical bodies prepared inside the body by the thyroid gland, the lack of oxygen to carry on certain necessary combustions in the brain cells—both simple chemical changes—have obliterated the essential characters of the highest form of life. Wherever we look we find life in only one form, composed of compounds of hydrogen, oxygen, nitrogen, and carbon, living between certain narrow limits of temperature, giving out exactly as much energy as it takes in, dependent on the supply of foodstuffs from outside, exhibiting certain electrical properties, poisoned and destroyed by the most absurdly small doses of certain chemical substances. It is clear that the living creature does depend largely on purely physical factors. Largely, but how far?

Consider the case of heredity. The union of two cells starts off a developing organism, as small as a flea, or as large as a whale, in most respects very like its parents, but in some very unlike—a separate individual. We are so used to this recurrent miracle that most of us regard it as a commonplace; you would not regard me as speaking seriously if I said that I am daily amazed by the fact that the offspring of man is man, when it might have been an ox, an onion, or a tree. Consider all the complexity of a man—his elaborate physical body; his intricate, sentimental, adventurous mind; his extreme stupidity in examinations; the subtle inheritance of voice and manner, of colouring and movement, of aptitude of body and mind; all alike from one generation to another, yet with ever-varying individuality; all inherited through a little cell which bears to a tadpole the same relation as a second to a lifetime. Add to this the faculty of handing on the same characters to countless successive generations. Adopt the purely physical theory of life, and all future history is wrapped up in a little cell so small that you cannot see it at all without a microscope. It would seem inconceivable that any man should attempt to build a physical or chemical theory of inheritance.

Or, again, take the case of consciousness, our awareness of things, our conviction of free-will and self-determination, despite all the arguments of philosophers. Is it conceivable that the most ingenious designer of instruments could make a penny-in-the-slot machine possessing, even for a moment, this type of consciousness? And yet, apply a simple physical change—turn on the gas in his bedroom, give him a few milligrams of a salt with a positive trivalent ion, deprive him of oxygen, raise his temperature a few degrees, and all the elaboration, all the sentiment, all the stupidity in examinations, all the power of carrying on the inheritance, are gone. Where—if anywhere—does physics end, and where—if anywhere—do we come up

* A public lecture delivered at the University of Manchester.

against the fundamental biological and spiritual realities of life? I cannot answer that question, and all I shall try to do is to show that attempts to answer it are not profitless; indeed, that progress in the knowledge of the living creature comes largely, and will come mainly, from attempts to solve it by the methods and tools, mental and material, of the exact sciences. And remember that progress in our knowledge of the living creature means progress in medicine, in industry, in agriculture, in sociology, in all departments of life. Our ignorance of the living creature is very great, and we can overcome our ignorance, not by theoretical discussions, not by dogmatical assertions, not by ingenious hypotheses founded upon insufficient knowledge. Progress, in my opinion, will come mainly from tracing out in the living creature the consequences of the broader generalizations found to hold in the non-living world of the exacter sciences, by the aid of the finer tools which they employ.

Physiology has three main functions—two very practical, one very philosophical. As the handmaid of medicine, and as the science of the behaviour of the normal living man, physiology has a great and practical part to play in national and social life. At the same time, however, physiology has its great intellectual part to play in attempting to describe the mechanisms underlying the manifestations of life; it is only this latter which we are discussing here. It may be asked what is meant by a mechanism, and how one would propose to study it. Before attempting to illustrate what I mean by a mechanism, let me give you a picture of a man as a community of a myriad living cells, each to some degree independent, each bound to the rest by ties of necessity, convenience, pride, comfort and inheritance. You—your personality as a whole—are the People, the Demos, the aggregate expression of the individual lives of all the little cells which make you up. You—your personality as a whole—express yourself more or less imperfectly by your representatives—the cells of your brain, meeting in parliament inside your skull. You—your personality as a whole—have a national pride and consciousness, expressed to some degree by your representatives. You decide, as a nation decides—goodness knows why!—to assault your neighbour. What happens? Your representatives, your government, the highly differentiated nerve cells of your cerebral cortex, interpreting your aggregate imperfectly expressed dislike of your neighbour, proceed to send a message to the various government departments—what we call the self-protective reflex centres (note that it is always self-protective)—ordering them to carry on. From that moment the War Office, the collection of reflex centres of the nervous system charged with "self-protection," proceeds to take charge of all the movements and activities of the community. Various lower and more automatic centres are called into play—corresponding to the various branches of the General Staff; and, finally, we come down to the individual fighting unit—the private soldier, the muscle cell with its simple functions, depending upon orders received along the nerves for its co-ordinated activity.

Now suppose that a nation is involved in such an affray, and that a visitor from another world has arrived with the intention of studying the organization and habits of the human race—a visitor who has never seen a man before and has not the least idea what he is like. He would not be wise, I think, to walk straight into Parliament, or into the War Office, or, indeed, into the Senate of this University, in order to study the organization in its full complexity; he would be much wiser, I think, to seek out an individual citizen, or an individual soldier, and to make a preliminary study of the simple common man. Having gained a conception of the behaviour of the simple common man, his need of sleep, of beer and tobacco, of oxygen, of companionship, his prejudices and his enthusiasms, he would be better fortified to proceed to study the organization of the State as a whole; for, after all, the properties of the State depend upon those of its fundamental unit—man. Similarly the properties of man depend upon the properties of the little cells of which he is built up, and his behaviour is the aggregate expression of their behaviour. Now, what properties have these cells? The outward manifestations of their properties are exclusively physical—they move, they divide, they take in food and water, they absorb energy and they give out heat; presumably there is some cause for all these manifestations, so we attribute a mechanism to a cell. The mechanism of a cell is the cause, the means, of the physical manifestations of the cell's activity. In talking of a mechanism inside a living cell, in talking of the mechanism of life, one is not affirming that life is nothing but mechanism; one is assuming—what is obvious—that many of the manifestations of life are physical, and that these physical manifestations must have a physical cause.

Let us consider shortly the properties of the living cell, the unit of which the community of the living man is made. The living cell is very small—a million million or so to a cubic inch—and it is necessary to employ a microscope to study its structure. It is so small that most physical methods cannot be applied to the single cell—we have to employ a large number of similar cells at a time. It is surrounded by a membrane possessing certain physical properties. It contains a nucleus concerned in some mysterious way with the continued existence of the cell and its power of subdivision. It requires food and oxygen; it gives out energy and CO_2; it needs salts and water; and it shows many highly specific chemical properties. Some cells—the cells of the green plant—can absorb the radiant energy of sunlight and store it as the chemical energy of oxygen and starch; without this property of taking up energy from the sunlight the world would be a dead world, with no possibility of life and thought. The cell obeys—so far as we know—all the physical and chemical laws governing our universe. And yet it shows a kind of independence, a degree of complexity, an apparent purposefulness, which makes it difficult to fit into any simple physical system. We know, of course, that science is still very young; the theory of relativity and modern views of electro-magnetic phenomena tend to show that all our simpler conceptions of time and space, the laws of motion, of the conservation of energy and mass, are only good first approximations to some more fundamental reality. To assert that present-day physics can supply an account of the behaviour of the living cell is simply to state what is obviously not true; but will physical science ever be able to supply such an account? In the last resort I believe it will not. This, I admit, is only a belief and not based upon definite scientific evidence. In the last resort, however, I believe it will be found that the living cell, or some arrangement of atoms containing the same kind of purposive, selective properties, has existed as long as matter, that it cannot originate from matter alone, but always had another cell before it, and that in some kind of way, and to some degree, the spiritual nature of the universe is reflected in the behaviour, the life and structure of the living cell.

One function—the chief function—of science is the discovery and formulation of exact laws. Do not imagine that the so-called exact sciences have a monopoly of exactly obeyed laws. Biology, the science of the living creature, has several laws to which no exception has been found. Every living cell comes from a living cell: the offspring resembles the parent: all living creatures appear to have originated from some common stock in the very distant past: every organ has a counterpart in other types and species: certain characteristics are inherited according to exact mathematical rules discovered by Mendel and amplified by Bateson. These generalizations have the same dignity as the conservation of energy or the laws of motion. One side of the work of the biologist is to trace out and establish these generalizations of biology by the methods of biology, by the observation of the behaviour of living cells, their ways, their inheritance, their abnormalities. The task of the physicist and chemist, on the other hand, is to elucidate the general principles underlying the phenomena of the non-living world. The function of the physiologist lies between these two, to judge between the physical and the biological laws, to see how far the methods and generalizations of physical science can describe the phenomena of life, and how far it is necessary to invoke other laws—biological or psychological in nature but established like the former by careful and exact observation—to describe them.

I have purposely discussed so far the philosophical, the strictly scientific, side of the subject. The first duty of a university is to encourage the pursuit of knowledge, and knowledge can never be pursued profitably except by those who are primarily interested in knowledge for its own

sake. The "get-rich-quick" attitude will never work in science. Do not let me be misunderstood; I should be the last to discourage the useful applications of science or those whose interest lies primarily in such applications; I hold strongly to the belief that a knowledge of the theories and applications of science is a necessary part of any liberal education, and I feel that such applications—if wisely and cautiously made—are an essential element in the progress of mankind. What I do wish to emphasize, however, is the fact that science will become sterile if we eliminate those—comparatively few—whose interest is primarily in the acquisition rather than in the application of knowledge. Those who need the encouragement and stimulus of a great university most are those who are in the firing line of the army which is promoting knowledge; without the units of the firing line the army cannot progress, necessary indeed as are those who follow behind to clear up, to consolidate, and to utilize the ground acquired. With this provision, however, let us consider a few cases in history where a study of the physical and chemical properties of the living creature have borne fruit in practical experience.

Pasteur investigating the optical properties of certain solutions was led to a study of the chemical properties of organisms, and thereby created modern bacteriology, modern knowledge of disease, modern hygiene, modern aseptic surgery: not to mention the fact that he saved the beer and silkworm industries of France. The world has never, I suppose, had a greater benefactor than Pasteur—on the material side the results of his work are to be reckoned in millions of lives and in millions of millions of pounds, and in the world of thought his discoveries are of no less value because, through them, disease has, to a large extent, ceased to be an unknown mysterious malignant spirit and become a matter which (though still unfortunately affecting the human race) is more or less understood, more or less a matter-of-fact plain thing. All this discovery and progress has resulted from Pasteur's interest in the optical properties of solutions.

Let us take another case. Here in Manchester, when a certain chemical body was urgently required in large quantities during the great war for the manufacture of propellant, bacteria were invoked to do what men found some difficulty in doing. In the future I think there is little doubt that manufacturing chemistry will come more and more in touch with biochemistry, and that more and more the chemist will employ strains of bacteria to deal with the molecule in an individual way impossible to his ordinary mass methods, and so to carry on processes which would otherwise be difficult or expensive. For example, a large part of the combined nitrogen, which is an essential constituent of food and an essential factor in chemical industry, is fixed for us by micro-organisms living on the roots of plants. Man has tamed the cow and the horse, the dog and the cat, till they have become an essential part of his social organization; in the future he will have to breed and tame the micro-organism and teach him also to minister to human needs.

Or take another case. When a muscle contracts, when a heart beats, when a nerve sends a message to or from the brain, certain electric currents are produced. The origin of these currents remains as yet a mystery, but the attempt to explain them has been one of the chief occupations of physiologists for fifty years. When you wish to do something you send a message to some muscle or group of muscles telling them to contract; this message goes 100 yards a second, 200 miles an hour—not as fast as a telegram, not, indeed, as fast as sound, but still many times faster than an express train. I called it a message, but what is it? Something goes along the nerve, some event, leaving nothing behind it, but causing the muscle to contract at the other end. The one thing we know about it is that this something, this event, this message is accompanied by an electric change: the elucidation of the mystery of this message will carry us far in describing the mechanism of life. But I am discussing practical applications. In order to study these electric currents, the Dutch physiologist Einthoven was led to design his string galvanometer, an extremely sensitive and rapid instrument for measuring and recording electric changes. This instrument has proved of recent years one of the most fertile agents in elucidating the problems provided by disease of the human heart. Most of us die in some way and in some sense of heart failure in the end, so that anything which improves our knowledge of diseases of the heart may well be considered a useful application of physical, in this case of electrical, science to the living creature.

A study of the chemistry and physics of respiration, undertaken largely in an attempt to solve the purely scientific question of whether oxygen diffuses of itself into the blood through the lung substance, or whether the lung substance seizes on oxygen, so to speak, and pushes it through, has led largely to the therapeutic use of oxygen in disease, to a knowledge of mountain sickness and of the effects of flying at high altitudes, to means of avoiding the disease known as caisson disease induced by working at high atmospheric pressure—as, for instance, when digging a tunnel under a river—and to a study of the ventilation of mines and factories and submarines. A study of the chemistry of foods and of the things that happen to foods after they have been taken into the body, has led us to a knowledge of the vitamins—the so-called accessory food factors without which the animal becomes defective in vitality, mentality and development, without which a population may become the prey of rickets, scurvy or beri-beri.

What further applications lie in front of us? The synthesis of a plentiful supply of foods adequate in all respects to maintain life for a continually increasing population; the more efficient utilization of the sun's energy; a knowledge of the mechanism of the cell—just as necessary to the wise physician as a knowledge of the mechanism of a watch to the wise mender of watches—the nature and production of specific immunity from disease: after all, is it really in the nature of things that all our children should have measles and mumps and whooping-cough? the production of chemical bodies with specific properties—like those of salvarsan—of destroying micro-organisms without destroying the body which they have invaded; the effects of radio-activity, of fresh air and sunlight: there is no limit to the practical applications of the study. Advance is coming quickly: with the aid of physical and chemical methods it is coming more quickly, but still not quickly enough. We want more workers, more apparatus, more laboratories and a wider scientific education of the people.

As I prepare to end this lecture, in which I hope I may perhaps have been privileged to communicate to others a little of my own pleasure in these things, I will revert once more to the interest of such investigations, as distinguished from their application. Mankind, one type of living creature, has been endowed with the power of thought and with an insatiable love of adventure. This love of adventure expresses itself in many cases in an insatiable curiosity as to how things work. It is a natural desire, and, I maintain, it is a good desire; it is a desire common to children of 3 and to old gentlemen of 80. How do things work? The living creature undoubtedly does work, in many and strange ways, but the problem of how it works is about the most difficult of all the problems man has ever set himself to solve. To answer it requires the highest experimental skill, the most delicate equipment, and a mind subtle enough to counter all the nasty tricks which the living creature will try to play on one. The problem is a very difficult one—how does the living creature work? But the difficulty only adds zest to the pursuit.

AT the last German congress for internal medicine it was decided to establish an institute for testing the therapeutical value of new drugs.

MESSRS. WILLIAM HODGE AND CO. will shortly publish in their series of Notable British Trials a volume dealing with the case of Burke and Hare, edited by Mr. William Roughead.

THE first meeting of the International Congress of Urology will be held in Paris from July 5th to 7th, under the presidency of Professor Legueu, with Professor Verhooge (Brussels), and Professor Brongesma (Amsterdam), as vice-presidents. The subjects for discussion are: (1) Nephritis, with uraemic syndromes; reporters, Hogge (Liége), Horder (London), Forbes (New York), Teissier (Lyons). (2) Remote results of wounds of the urethra; reporters, Kidd (London), Gardini (Bologna), Pasteau (Paris). (3) Pyelography; reporters, Lasio (Milan), Papin (Paris), Waters and Guy (Baltimore).

British Medical Journal.

SATURDAY, MAY 21ST, 1921.

THE MACHINERY OF THE ASSOCIATION.

NOT all of those who read that section of the Annual Report of Council (printed in the SUPPLEMENT of April 30th) headed "Question of Efficiency of Constitution and Machinery of the Association" will realize the immense amount of work and experience which are there embodied, and for which the Association is indebted to Sir Jenner Verrall and his colleagues. The report could only have come from members who know much of the history of the British Medical Association and the changes its constitution has undergone during the past twenty years, and who are familiar with its working both locally and at the centre.

The object of the recommendations made is to bring the machinery of the Association up to date, and though the report is long it is not so formidable as it looks. Many of its numerous recommendations merely dot the i's and cross the t's, being verbal amendments of Articles and By-laws designed merely to remove obscurities. Others suggest relegating to the head office some of the detail work which has hitherto been done in part by the honorary secretaries of Divisions and Branches. An important subdivision of the report seeks to increase and define the responsibilities of Branch Councils. Before the present constitution was adopted in 1903 there were no Divisions and all the local work of the Association was done by the Branches in general meeting and by the Branch Councils. The scope of that work varied in accordance with local conditions and the energy and initiative of the Branches. All of them held clinical and scientific meetings, and all in varying degrees cultivated the social side. A few paid attention to medico-political questions and some dealt with ethical disputes. With the inauguration of the Divisions some of the Branch Councils which had hitherto been active felt that much of their *raison d'être* had gone, and their tendency has been to become bodies whose only concern with the Divisions in their areas is to distribute to them the grant received from the Central Council. But others have always felt it to be their duty to act in a sort of parental capacity to the Divisions in their areas, to try to co-ordinate their action so as to level up the local standards of remuneration and conditions of practice, to serve as arbiters in ethical disputes, and to stimulate those Divisions whose activity fell below the general level. The Council has come to the conclusion that all Branch Councils should be expected to take this view of their responsibilities. It is therefore recommending that all Division secretaries should be *ex officio* members of the Branch Council, that the Branch Council shall actively co-ordinate the work of the Divisions in its area, calling joint meetings of any of its Divisions to consider matters of common interest, and shall apply itself to the reorganization of any Division which may have become inactive, and act for such Division pending reorganization. As a corollary to this the Council proposes to take power to organize any inactive Branch, and to act for it, pending its reorganization. Realizing that no Branch or Division can be really effective which has not adopted organization and ethical rules of procedure, it is proposed that no new group of members shall in future be recognized as a Branch or Division until it shall have adopted such rules, and that as regards existing Branches and Divisions the names of those which have not adopted such rules shall be reported annually to the Representative Body.

Another group of recommendations deals with the Representative Body; their tendency is to impress on Divisions the importance of exercising their right to appoint representatives. It is proposed to shorten the time within which representatives can be appointed; to provide that notice of election of representatives must be sent to the head office not less than six weeks before the Annual Representative Meeting; to impose on the constituencies the duty of electing deputy representatives; and to empower the Council, whenever it thinks desirable, to give separate representation to Divisions which have fewer than the standard fifty members. No one of the proposed changes is individually great, but collectively they will, if adopted, tend to accentuate the predominant position of the Representative Body in the constitution of the Association. In connexion with this section should be noted that part of the report which deals with the power of referendum to the Divisions where the Council differs from the opinion expressed by the Representative Body. The Council has carefully examined the present machinery and has presented an analysis of it. It has come to the conclusion that the only change to be recommended is one which makes it necessary for the Council to decide whether it will take a Referendum or not within one month of the meeting of the Representative Body, instead of, as at present, within three months. The change is one of form rather than of substance, for at present the Council meets immediately after the Representative Body and would undoubtedly make its decision on a matter of such importance without the delay even of a month.

The most striking change proposed in the report is in regard to the method of election of the Central Council. The Constitution Committee of 1900–2 was sharply divided as to whether the Council should under the new constitution be directly elected by the Representative Body or continue to be elected by the votes of members of Branches, singly or in groups. There is, of course, much to be said for the view that the Council is responsible to the Representative Body, and should be directly elected by it. To some this seems the strictly logical view, but in constitutional matters sentiment is often quite as important as logic. Moreover, the Branches have always elected some of the members of Council, and many members are averse from giving up this local election, in which every individual member can if he choose take a part, in favour of an election by the Representative Body acting as an electoral college. The result in 1903 was a compromise. The Representative Body has for some years elected 16 members of Council—12 by representatives grouped geographically in 12 groups, 4 by the representatives as a whole. The Council now proposes that these 16 shall be elected as follows: 12 by the representatives of England acting together, 1 by the representatives of Ireland, 2 by the representatives of Scotland, and 1 by the representatives of Wales. This, it will be seen, is a step away from the more localized grouping hitherto adopted, and if approved will diminish an objection often brought against the present method of election by the 12 groups—namely, that the number of representatives in the group is too small

to be a satisfactory electorate, and that the method unduly restricts the choice of the meeting. It will be noted that the election by postal vote of 24 members by grouped Branches is untouched, as is also the election of members of Council by Oversea Branches. Other proposed changes in the Council are to make the outgoing Chairman of Representative Meetings *ex officio* a member of Council for one year after he leaves the chair and to make the Deputy Chairman of Representative Meetings *ex officio* a member of Council.

The last large section of the report deals with the Committees of the Association. It proposes to make more precise the references to most of the Committees, to decrease the size of the Finance Committee while increasing that of the Journal and Science Committees, and so to alter the method of election of the Science Committee that 4 of its 10 members will in future be elected by the Representative Body instead of all being elected by the Council. Besides this, power is given to Committees to consult each other directly instead of, as at present, indirectly through the Council, and to any Standing Committee to co-opt persons who may be thought specially qualified to assist the Committee in its work.

None of these changes are to come into operation at once. The intention is that the Representative Body shall freely express its opinion this year on the changes proposed; such of them as are accepted will be placed formally as new Articles and By-laws before next year's Annual Representative Meeting. There can, therefore, be no fear of hasty and ill-digested changes in the constitution.

Those who study the report will be struck with the fact that a careful and long-continued scrutiny of the existing constitution and machinery of the British Medical Association by a body of experts who were by no means prejudiced in favour of leaving things alone has resulted in a report which recommends no revolutionary changes and which expresses the deliberate opinion, endorsed by the Council, that on the whole the present constitution has proved well suited for carrying out the objects of the Association. It remains to be seen whether the Divisions and Representative Body are also of this opinion, and how far they think the changes now suggested will tend to make the Association still more useful to its members and to the profession.

THE MINISTRY OF HEALTH.

THE vote to complete the estimate for the Ministry of Health had a quiet passage through the House of Commons last week. Sir Alfred Mond, on beginning his speech, appealed for consideration because of the newness of the Ministry and the difficulty of its task, and in concluding it spoke of a time when disease would be a thing of the past and illness a kind of forgotten tradition. While agreeing that the Ministry has a great future in helping the nation towards higher standards of health and physical development, we think it will be prudent at this stage not to promise too much. Dr. Farquharson again directed attention to the disappointing results of sanatorium treatment when compared with the glowing promises of twenty years ago, and expressed the opinion that it would be impossible to have a tubercle-free population in this country. Without attempting to adjudicate on a matter so complex and uncertain, it may be said, without fear of contradiction, that the facts about tuberculosis illustrate the point we desire to make. It would, we think, be both wise and politic, even in a peroration, to impress on the public mind the truths that the increase of industrialism and of the proportion of the population in urban accumulations are constantly making the preservation of health and the prevention of disease more difficult, and that, if things are not to grow worse, the hearty and intelligent co-operation of the individual as well as the expenditure of public money are necessary.

A good deal of the short time the House gave to the debate was spent in getting at the truth about a fairly simple matter of fact—namely, the number of medical officers Dr. Addison had appointed to the Ministry. By counting in the regional medical referees or consultants appointed under the Insurance Acts, which was perhaps fair, and by reckoning the medical inspectors of the Local Government Board who became medical officers of the Ministry of Health as new appointments, which certainly was not, the *Times* got a total of 50 new appointments and of about 100 medical officers altogether. The official calculation by omitting the regional referees gave a net increase of 13 and a total of 59 medical officers. Technical justification for the omission of the referees is found in the fact that their appointment was approved by Parliament in 1914 but suspended during the war; but in any case to get a true comparison they should be excluded, for the work of the medical department of the Local Government Board had nothing to do with the Insurance scheme. Of the new medical officers six, Dr. Addison states, were appointed to reinforce the staff dealing with the prevention of the spread of epidemics and kindred matters, especially with a view to the requirements of the sanitary cordon urgently necessary in the post-war period; from what Sir Alfred Mond said it would appear that the reference is to the port sanitation work in which the central authority can give essential help, as was long given by the Local Government Board. It may be true that in this and other directions the Ministry is not yet doing much more medical work than its predecessor, but it seems obvious that a Health Ministry must have an adequate medical staff if it is to be as useful as the country has been led to expect it will be. The charge of extravagance in this matter of the appointment of medical officers has broken down completely.

Sir Alfred Mond, like his predecessor, feels the oppression of the housing problem, but could say that though there was a shortage of certain classes of workmen good progress had been made; cost had decreased a little and local loans had been raised without difficulty. In spite of all this, each house erected by local authorities is to cost the State £60 more a year than its rent, so that the best news the Minister had for the tax-payer was that the estimate originally made in many districts of the number of new houses needed had proved to be enormously beyond the actual demand. Anyone who a year ago had hinted at an over-estimate would have been called reactionary, and the reduced estimate is not now accepted by the National Housing and Town Planning Council; Sir Alfred Mond spoke of an ultimate gross number of 300,000 new houses of different classes, but the Council would appear to adhere to the estimate of a million houses for England and Wales alone. This estimate was founded on the results of the housing survey made under conditions laid down by the Ministry of Health, but did not, perhaps, take sufficient account of the possibility of repairing old houses—often much better built than modern—and rendering them habitable and healthy.

Not very much was said about National Insurance. The new Minister stated that he had begun by doubting whether the regional referees were necessary.

but had been convinced of their utility. Sir Watson Cheyne expressed the opinion that the panel could be improved if it were made easier for the insured person to change his doctor so as to encourage competition, and the Minister agreed. Another proof is thus afforded of the wisdom of the policy of the British Medical Association in insisting on free choice of doctor. Sir Watson Cheyne's remarks also drew from Sir Alfred Mond the statements that the establishment of a State medical service was not in contemplation, and that he did not think anyone wished to destroy the voluntary character of our hospitals. In this opinion we fear he is mistaken; but it may be deduced that he is himself anxious that the voluntary system should be maintained.

The general impression produced by his share in the short debate (of which a full account appears in our Parliamentary Notes this week) is that Sir Alfred Mond is disposed rather to allow things medical, so far as he is concerned with them, to follow the natural line of development than to endeavour to bend them to conform to any theoretical preconceptions.

THE PROBLEMS OF INDUSTRY.

THE newspapers are filled with the tale of labour troubles and struggles, but these accounts reveal only a one-sided appreciation of the magnitude of the problems involved and the efforts that are being put forth to secure both better and more efficient working in industry. To the student of these problems two books recently issued may be commended. One by Archibald Chisholm,[1] entitled *Labour's Magna Charta*, is a critical study of the labour clauses of the peace treaty and the draft covenant and of the recommendations of the Washington International Labour Conference; it is exceptionally well written and sets out the economic problems of international labour in a lucid and interesting manner. Considering only those parts of the work which have a distinctly medical bearing, we note how far-reaching is the influence of physique, hours of work, food, and fatigue. Physique as a factor in industrial efficiency is of prime importance. Chatterji is quoted as declaring that Indian labour is really dear, though wages are low. He stated that if an English mill engaged on a similar work were compared with an Indian mill it would be found that, while a much greater number of employees were engaged in India, the output would not be worth more than 65 or 66 per cent. of the value of the English output. This low efficiency applies to child labour and to a lesser extent to female labour. As a means of meeting the needs of women who must work, reference is made to a "half-time" system which has been in operation for some years in the United States, and has been applied also to apprentices. While the great majority of workers are engaged all day, some work from 8 a.m. until noon. One great firm declares that it has found the system so successful that it is prepared to adopt it on a large scale. Industrial fatigue is, of course, another factor in efficiency. It is defined as "a condition of lower capacity for work which follows or occurs during the performance of work, of which it is the direct result." It may exist, therefore, without weariness. Under the Taylor system, whereby causes of fatigue are largely reduced, the workman's output has been found to increase by as much as 60 to 100 per cent., and in addition a considerable saving of material has been effected. The influence of fatigue upon efficiency is readily appreciated by the doctor who typewrites his own letters and compares the number of mistakes made in the evening after a hard day's work with his morning performance. Adequate food is another important factor: the better-fed worker is usually the more efficient. It is said that figures show that before the war Germany consumed 20 per cent. more food in proportion to the number of industrial workers than the United Kingdom, and France 15 per cent. more. Mr. Chisholm quotes an interesting speculation of Dr. Ellsworth Huntington which suggests that health is a greater determinant of trade cycles than the condition of crops. For every death, he holds, we have about ten cases of severe illness, and owing to the disorganization of industry caused by deaths and sickness, bad trade ensues. He endeavours to show that a high death rate regularly precedes hard times, and that a low death rate is followed by a period of prosperity. The relative inefficiency of Indian labour may be connected with a high death rate, for the average duration of life in that country is given as only 23.5 years. The second work is a massive volume by Dr. René Sand[2] on industrial organization, social medicine and civic education in England and the United States. The book is the result of three personal investigations made in these countries in the years 1918–19, the first at the instance of the Belgian Government. His journeys were extensive, his investigations most thorough, and the results are of great value. The primary object of his visit to the States was to make a study of "Taylorism," which has a wide vogue in that country and to a lesser extent in Europe. At present it seems to be the last word in industrial progress, and may be epitomized as the application of the science of organization to production. The physiology, psychology and social condition of the worker are studied, for in their improvement is found the key to efficiency. The health of the worker must be assured, or else he cannot do good work. General and professional education must be high, so that talent may be developed. Contentment must be secured, for that determines the wish to work. The author has collated the efforts that are being made to attain these ends by great industrial organizations, and he shows how extensive and far-reaching are the effects already secured. A compilation of this kind is of great value to those engaged in industrial and State medicine, and presents points of interest to every practising physician. On page 478 is a most dramatic diagram, in which the infantile death rate is correlated with the annual income of the father. With wages less than 150 dollars the death rate is 170 per 1,000, at 500 dollars it has fallen to 130, at 700 dollars to 108, at 1,000 dollars to 80. A like correspondence is found between wages and the health of the workers. One of the conclusions to be drawn from the evidence of these two books is that low wages mean poor work and a more costly production than high wages. The economic failure is further aggravated by the drain on the public purse due to the piling up of costly remedial expenditure that could be better utilized in more remunerative forms of medical and sanitary provision.

[1] *Labour's Magna Charta*. By Archibald Chisholm, M.A. London: Longmans, Green, and Co. 1921. (Pp. 192. 8s. 6d. net.)

[2] *Organization Industrielle, Médecine Sociale, et Education Civique en Angleterre et aux Etats-Unis*. By Dr. René Sand, of Bruxelles. Paris: J. B. Baillière et Fils; Bruxelles: Libraire Lamertin. 1920. (Roy. 8vo, pp. 896; 30 francs.)

ROYAL SOCIETY CONVERSAZIONE.

THE annual conversazione of the Royal Society was held at Burlington House on May 11th, and was so well attended that it was practically impossible to see a tenth part of the exhibits and demonstrations. Fortunately arrangements are always made for an earlier press view of the latter. This year amongst the thirty-nine demonstrations figuring in the catalogue there was none having any direct bearing on medical science, though the exhibition contained much of great general interest. Mr. L. T. Hogben, of the Imperial College of Science, demonstrated the effects on tadpoles by feeding them with pineal gland. Hitherto there has been no proof of any physiological function exercised by the pineal body, but Mr. Hogben has succeeded in showing, in tadpoles at least, that it has some controlling power over the pigment cells. Macroscopic

and microscopic preparations showed that in the pineal-fed tadpoles there is a very evident contraction of the melanophores, an effect that is not produced by feeding experiments with any other endocrine organ. Mr. C. Tate Regan, F.R.S., gave a demonstration of part of the life-history of the common eel, founded on the researches of Dr. J. Schmidt, who showed that the freshwater eel of Europe breeds in the Atlantic, south-east of Bermuda. A series of larvae, from the middle and western North Atlantic, with long and slender pointed teeth, were exhibited, together with a photograph of the metamorphosis into the elver. The accompanying models illustrated the changes from the yellow eel with its thick lips, small eye, and compact pectoral fin, into the thin-lipped, large-eyed silver eel with pointed pectoral fin, the latter form of eel being that which migrates to the ocean to become mature. Dr. John Rennie demonstrated the mite, now named *Tarsonemus woodi*, which has been claimed by Bruce White to be the causal agent of Isle of Wight disease in bees. White showed that the mites perforate the tracheae, and by their numbers obstruct the spiracles and thus deprive the bees of the power of flight. Mr. J. E. Barnard gave a demonstration of the microscopic appearances of sections by ultra-violet light. Certain structures, owing to their differences in chemical composition, give different fluorescent tints, and the images obtained are often dissimilar to those obtained by ordinary staining methods. The light filter used was a glass made by Chance, which is transparent to the ultra-violet radiations, and the quartz substage condenser was of the "dark-ground" type. A most interesting and instructive astronomical model designed for educational purposes was exhibited by Dr. William Wilson. This model, which has received great praise from leading astronomers and teachers, not only demonstrates the more familiar motions of the sun, earth, and moon, and the various phenomena resulting therefrom, but is capable of simple analyses of each particular motion. The apparatus is most ingenious.

NORTH EUROPEAN CONFERENCE ON VENEREAL DISEASES.

THE first North European conference on venereal diseases opens to-day at Copenhagen, under the auspices of the League of Red Cross Societies. Besides the Danish Red Cross Society, which is acting as host and convener, the conference will be attended by representatives of the following national Red Cross Societies: Great Britain, Holland, Norway, Sweden, Finland and Germany. The Governments of these countries will also send delegates. The results of the all-America conference on venereal diseases, held at Washington in December, 1920, will be presented to the Copenhagen meeting by Lieut.-Colonel Ritchie, Assistant Chief of the Division for Combating Venereal Diseases, League of Red Cross Societies. The conference will be opened by the chairman of the Danish Red Cross, Professor Höffding, after which Sir David Henderson, Director-General of the League of Red Cross Societies, will deliver an address. A general summary will be given of the conditions in each country, and the medical and educational measures against venereal diseases will be discussed. The following special problems are to be presented: (1) The supply and cost of arsenical compounds for the treatment of syphilis; the possibility of establishing an international standard for the export and import of such compounds: discussion to be opened by Dr. Kristian Grön, of the Norwegian Red Cross Society. (2) The provision in important ports, by international agreement, of facilities for the treatment of venereal diseases among sailors, and measures to be taken in connexion therewith: discussion to be opened by Colonel L. W. Harrison. (3) The part of the Red Cross in combating venereal disease, its relation to government and voluntary agencies: discussion to be opened by Professor C. E. A. Winslow, of the League of Red Cross Societies. (4) Medical measures for the prevention of venereal diseases: discussion to be opened by Dr. Jersild, of the Danish Red Cross Society. Following this meeting at Copenhagen, the League of Red Cross Societies expects to arrange other conferences of groups of nations, both in Europe and in other parts of the world.

THE HARROGATE WATERS.

PROFESSOR ARTHUR SMITHELLS, C.M.G., F.R.S., has completed the survey of the Harrogate waters entrusted to him four years ago. He has been assisted by Mr. W. Lowson, B.Sc., F.I.C., lecturer in analytical chemistry in the University of Leeds, where Professor Smithells occupies the chair in that subject, and also by Professor Bragg, F.R.S., who was responsible for determinations of the radio-activity of the waters; by Professor P. F. Kendall, who reported on geological questions; by Professor Goodman, who advised on engineering problems; by Mr. G. R. Thompson, B.Sc., formerly Professor of Mining, and by Professor J. W. Cobb, B.Sc., F.I.C. Details of the results obtained have not yet been published, but we are informed that the analyses when compared with previous records show that the special characteristics of the Harrogate waters are fully maintained. Improvements have recently been carried out which have led to an increase in the sulphur content in the sulphur bathing waters; the storage loss can now be kept at the remarkably low level of 5 per cent. The Harlow Car alkaline sulphur water used in skin diseases, hitherto only available at its source two miles from Harrogate, has now been brought to the Royal Baths, the difficulty of transmission without deterioration having been overcome. Mr. Arnold Woodmansey, M.Sc., has been appointed full-time analytical chemist to the Harrogate corporation to supervise the collection, storage and distribution of the mineral waters. He has demonstrated the presence of manganese in all the chalybeate and most of the sulphur waters, and it has been shown that the barium content of several of the wells has been increased, in one instance by as much as 50 per cent. The British Spa Federation has instituted a system of training for bath attendants; persons attending the balneological training school at Harrogate are required to have had a minimum of eighteen months' practical work at one of the spas of the Federation, and to have attended a series of lectures given by members of the local medical profession; they are then submitted to a primary examination. After further practical work on specialized and more difficult treatments, and a further series of lectures, a candidate is eligible for the final examination. Nearly all the members of the Harrogate Baths staff have attended lectures during the past winter and have passed the primary examination. It is expected that next winter a considerable number of candidates from other home spas will attend the course.

THE UNMARRIED MOTHER.

THE aims and needs of the National Council for the Unmarried Mother and her Child were put forward at an "At home" given by Dr. Mary Scharlieb at her residence on May 12th. The object of the National Council is to correlate the work now being done on this subject all over the country, and to influence public opinion in favour of the bill which has been prepared by the Council. Captain G. E. W. Bowyer, M.P., is in charge of this measure, and is keenly endeavouring to obtain a second reading for it in the House of Commons. The main features of the bill—which was introduced last year by Mr. Neville Chamberlain on the Council's behalf—are that proper responsibility for the illegitimate child should be placed upon the father, and that subsequent marriage should legitimize children from the date of marriage. Besides the work involved in trying to amend the existing law, the Council is carrying on a great deal of educational work throughout the country. While at first it did not consider that dealing with actual cases came within its programme, a deaf ear could

not be turned to the individual cases of hardship which have come to its notice, and the care of unmarried mothers and their children is now included within the scope of its activities. Maternity homes are found for expectant mothers, hostels for mothers and children, and work is found for mothers, with the object, if possible, of keeping mother and child together; for no longer in these more enlightened days is it thought desirable to separate mother and child in different institutions, as used to be done. When it is realized that 80 fresh cases were dealt with last month by the Council, and that the number of illegitimate births in England and Wales last year was over 42,000, the necessity for the work of the National Council is obvious. Unfortunately, with the increase in unemployment, the difficulties in placing mothers in suitable employment have increased. At Mrs. Scharlieb's meeting the excellent work that the National Council is doing was made clear, and its financial needs were ably pleaded. Its efforts to bring the law of England on illegitimacy into line with that of other civilized countries, and the educational and charitable work it is doing, are worthy of increased support.

THE TREATMENT OF ALCOHOLISM.

IN his last annual report to the Homes for Inebriates Association, Dr. F. S. D. Hogg gives an account of the year's work at Dalrymple House, Rickmansworth, of which he is the medical superintendent. Certain of his general conclusions, based on a long experience of the institutional treatment of alcoholism and drug addiction, seem worthy of note. Thus he considers that admission under the Inebriates Act is the best course both for the patients and their friends in a large number of cases. No kind of distinction is made at Dalrymple House between either class, but while private patients can end their stay at any time, and sometimes do leave prematurely without giving themselves a chance of success, those under the Act must remain in residence until the period for which they have signed expires, unless they are previously discharged, or go away on leave of absence under the Act. The last-named procedure he finds a useful method of practically discharging a patient while still keeping in touch with him and being in a position to help him and his friends should a relapse occur. In regard to treatment, Dr. Hogg says: "I continue to adopt no single form of drug therapy in all cases, for I know no treatment that is universally applicable. Each case has to be studied, and such treatment as is considered appropriate is adopted. Alcohol is given at first to those who require it, but after the first two or three days it is rarely demanded; for drug habitués gradual reduction is usually employed. My object is to wean a man from alcohol, or from the particular drug for which he has an addiction, with as little discomfort to him as possible." This, we believe, represents the opinion of those, in this country at least, who are in the best position to judge. Most authorities will probably also agree with the view here expressed that, when the poison has been withdrawn from the patient's system, the next step is to cure him when possible of any diseased condition that may be at the root of his drink or drug impulse, and restore him to a sound physical condition. Thereafter the object is to train the patient's mind to resist the morbid impulse by cultivating his self-control, strengthening his will power, and making him realize that part of his cure lies in his own hands. Above all, the inebriate and the drug slave must be made to understand that abstinence is an absolute necessity. The first principle in the treatment, not only of dipsomania and pseudo-dipsomania, but of chronic alcoholism as well, is total abstinence. As has been well said by a writer on this subject, it is idle for the drunkard to hope that he can ever drink habitually in moderation. With regard to liberty to leave the grounds of the institution, Dr. Hogg reports that a considerable amount of freedom can be given to some patients within a few days of admission, and after two to four weeks' residence the large majority can be given parole. His patients are all males and mainly, if not wholly, drawn from the upper and middle classes, and this experience, therefore, may not quite coincide with that of the medical superintendents of all inebriates' retreats.

THE HISTORY OF MEDICINE.

THE second Congress of the History of Medicine will be held in Paris during the first five days of July under the presidency of Professors Jeanselme and Menetrier. The congress will be opened at the Faculté de Médecine at 9 a.m. on Friday, July 1st, by the Minister of Public Instruction, and discussions will take place on the afternoon of that day and the four following days. The subjects chosen are the history of hospitals and of public provision for the sick in all countries; the diet scales of man and the diet of animals in antiquity and in the middle ages; the history and nature of the great historical epidemics; the part played by pharmacists in the development of biology, and the history of epizootics. Visits will be paid to hospitals, museums, and central hospital pharmacies. After the closing session on Tuesday there will be a reception at the Hôtel de Ville. During the congress an exhibition will be open containing manuscripts, books, engravings, paintings, medals, and instruments of historical interest. The subscription — 40 francs for members and 20 francs for members' relatives—should be sent to M. Fosseyeux, 3, Avenue Victoria, Paris.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

The Ministry of Health.

SIR ALFRED MOND'S DECLARATION OF POLICY.

IN Committee, on the vote for £15,245,098, Sir Alfred Mond made, on May 12th, the annual statement on behalf of the Ministry of Health. Recalling that the Ministry was established as recently as the year 1919, and that it had taken over the already heavy burdens of the Local Government Board, National Insurance, and the development of health, and had had placed upon it the responsibilities of housing, he pointed out that comparisons between the expenditure of the Local Government Board and that of the new department could not fairly be made. In spite of their difficulties, the Ministry had reduced the estimate by £3,300,000 as against what it was last year, including what had been saved in the stoppage of war services. There was an increase on administration of £594,000, an increase in housing grants of £251,000, an increase on miscellaneous health services of £970,000, a decrease in insurance grants of a considerable sum, and a decrease on special services arising out of the war of £7,000,000. It should be borne in mind that a great part in the increases and decreases in the grants resulted automatically from legislation passed by the House, and especially from the operation of the National Insurance Act. For instance, about £8,000,000, representing grants in aid, payable under the National Insurance Act, were not subject to change by the Minister. He explained also that a considerable sum in respect of the establishment represented an expenditure on services delayed by the war, and of a temporary character. In regard to housing, Sir Alfred Mond said that his position reminded him of that occupied by some remote ancestors of his in the land of the Pharaohs some few thousand years ago, who were asked to make bricks without straw—the trouble in the present case was to find the money. The situation on May 1st was that they had 176,000 houses under approved tenders, 160,000 under signed contract, and 102,000 houses in course of construction. The amount of skilled and unskilled labour had risen from 129,000 on October 1st to 130,000 on May 1st; they were completing nearly 6,000 in April, and would complete nearly 7,000 a month hence. Partly, as he believed, on account of the depression local authorities were greatly reducing their estimates of requirements, and the Minister hazarded the view that this might be because many people seeking houses a year or two ago might be contemplating emigration. But, on the best estimate of reviewed arrangements, the loss to the State on each house erected by local authorities under the present scheme would be about £60 a year, and that put

into the terms of 200,000 or 300,000 houses meant a net loss to the State and burden on the taxpayer of between 12 and 18 million sterling a year. In addition, a grant of 15 million had been voted for the private builders' subsidy, and there were other heavy obligations. He was glad to say that the price of houses was coming down. Tenders for the average-sized house had come down from £950 in August to £855, and they were still dropping. Roughly speaking, he regarded 300,000 as the limit for the number of houses to be built in England and Wales under these conditions, and if they could get along with less he should cut down the figures. In closing the review of this part of his work the Minister described housing as a kind of cuckoo's egg laid in the nest of the Ministry of Health which had pushed little chicks of health out of the nest.

Coming to what he described as being really the work of his department—that was considerations of health—Sir Alfred Mond dealt first with a criticism in the press on the medical establishment of the Ministry. He said that, whereas the old Local Government Board had a relatively small medical staff, and comparatively few medical duties, the National Health Insurance had a much larger staff, and when the two were joined together that automatically increased the staff of the Ministry of Health. On April 1st, 1919, the number of pensionable medical men in the Local Government Board and the Insurance Commission of England and Wales was 46, the number in the Ministry of Health at present was 59—that was a difference of 13 distributed as follows: Maternity and child welfare 2, tuberculosis 2, venereal disease 2, port isolation hospitals 3, statutory medical service and intelligence work 3, and work for the Home Office 1. These were additional functions to the work which was being looked after by the medical staff of the Ministry of Health, apart from the newly-established regional officers. He thought it was not quite realized how big was the sanitary work the department supervised. No fewer than 1,800 sanitary authorities, 114 port authorities, 646 Poor Law Unions looked to it for guidance, and 1,029 isolation hospitals and 4,220 public vaccination districts had to be inspected. There was a vast number of maternity centres and tuberculosis sanatoriums also requiring attention. He had stated why the increase in the medical staff of the Ministry had taken place; they were not up to their full establishment on the medical services, and he did not propose to fill the two vacancies at the present time. There were also some six temporary appointments the work of which had lapsed, and he intended to discontinue them. He understood there would be the possibility of the reduction of two more of the permanent established staff, so there would be a reduction altogether on establishment and non-establishment of between nine and ten. That was as far as they could wisely go at the moment in the direction of economy in this very important service, upon which so much depended and so much more would depend in the future. He was glad to say that the health rate of the country was good and the birth rate was rising and the death rate declining. Particularly marked was the continued steady decline of infant mortality. No one who had seen the maternity and infant welfare work could doubt the services rendered. He remembered what was perhaps the first centre or home of this kind in the world, which was started in his own constituency by his wife many years ago. Any one who had seen how much good a relatively small institution, wisely guided, could do would certainly wish to see the work extended all over the country. He was glad to say that the number of health visitors had gone up from 1,400 to 1,700, the number of non-resident centres had risen from 1,400 to 1,900, the number of maternity homes had gone up from 740 to 1,200, and the infant hospitals for children under 5 years had risen from 50 to 367. Whatever economies they might be forced to make, he hoped that they would not economize on the infant life of the country; that would be the poorest and most miserable economy.

They were making good progress in dealing with tuberculosis. The work that had been done was beginning to bear fruit—the first-fruit of the work done by the Ministry of Health and by the enthusiasm and zeal of his predecessor in office, who had so much special knowledge of the subject. They might achieve relatively little at the time, but they could be confident that, if they proceeded on reasonable lines of care and treatment, if they proceeded on the lines of teaching people about hygiene and how to avoid the disease rather than dealing with it only when contracted, they could produce a great improvement in the standard, physical and therefore moral, of this country. It was the best investment the country could make, for after all the greatest curse and unhappiness was ill health.

He was glad to say that venereal disease work was making good progress. While he did not believe in covering the country with posters to draw attention to the evil and over-emphasize it, he was quite convinced that they must steadily proceed with propaganda and with treatment. He was considering now the issue of a new circular to explain the policy of the department, which consisted of a sane and moderate view of this very complex and difficult problem, which had a moral and social as well as a medical side. The moral and social side should never be overlooked; it was more important in some respects than the medical. While quite prepared to assist to have the health of the nation protected against this very terrible disease, he was not prepared to accede to the demand of those who seemed to him to regard the question—with perfect sincerity and great enthusiasm—merely from the aspect of the medical cure without taking the wider view.

Sir Alfred Mond next referred to the establishment of medical referees in connexion with National Health Insurance work. The appointment of some thirty-three whose duties were largely connected with the examination of members of approved societies, had been criticized in the press; but these appointments were really made as long ago as 1914 by the House. It was no new fantastic idea which had been elaborated, but the redemption of an old pledge. The object in the main was that approved societies should have an independent and carefully chosen man in each area, to whom they could submit cases in regard to which they were doubtful whether such cases ought to remain on the books or were to resume ordinary occupations. It was very difficult sometimes to determine whether a man was malingering; there was a danger—he would not say a bias—on the part of the man's medical attendant to give him the benefit of the doubt, but it was in the interest of everyone that a man should return to his normal life as quickly as possible. When he entered upon his office he had some doubts as to the ability of these medical referees, and he asked six of them from different parts of the country to come and have a talk with him. He was very much impressed with the value of their work and of the way in which their work was being appreciated, both by the approved societies and by the most intelligent of the ordinary general practitioners in the district in which they worked. They acted also to a considerable extent as consultants, and were ready to act in such capacity to the panel doctors when the latter had more than ordinary difficulty. He believed that their presence was welcomed by the medical profession as a whole. They were engaged only as an experiment for a certain number of years, but were performing good and useful work, and it would be a very great mistake, under the pressure of clamour or prejudice, to do away with a very fruitful source of development of this work by men very carefully chosen and very able, before there was time to judge how far the work would be of utility.

He believed there was a great future before the Ministry of Health. He regretted very much that one of its important sections, namely, research, had been detached; he hoped it was going to be joined on again, for that was one of the most fruitful sources of developments. There were many other matters on which he would have liked to speak, but he would say broadly that he would try to extend those activities which would bear most fruit at the least expense and show the greatest amount of good. He should deplore beginning his economies at the wrong end. Such a course would be like that of people who, when they did not feel well, took some patent medicine and so got thoroughly bad, and then had to spend months under the doctor and pay a bigger bill than if they had started with him. There were so many false economies. A friend broke his leg in running after a motor bus, when it would have been much cheaper to have taken a taxi. They must not carry such policy into their national life, but must have a wide vision for the future. He felt his responsibility very greatly. He recognized there was a great work to be done, and if they could assist to put a few small stones in the great building of national health and national wealth he should indeed be glad.

Debate.

In the course of discussion Mr. C. Edwards brought up the complaint made by members of the Standing Joint Committee of the Industrial Women's Organization who were appointed on one Consultative Council. They said that in the first instance their reports were mainly ignored, and that afterwards the Council was not called together. Orders were issued by the Ministry without any reference to such Councils for an opinion. Women members of the councils were so dissatisfied with what was being done that they sent in their resignation.

Colonel F. B. Mildmay, after a tribute to Dr. Addison for his sympathy with voluntary hospitals, expressed his confidence in the Committee presided over by Lord Cave, whose final report was shortly expected. He asked the Government, however, to appreciate that many of the principal London hospitals were already in financial crises. The London Hospital management was being compelled to close two hundred beds at once, though 761 poor people were waiting for admission. Lord Knutsford had told him that the hospital was getting further into debt at the rate of £2,000 per week; King's College Hospital was, he understood, being forced to close 150 beds; St. Thomas's was being forced to close a hundred, and so on. At the Middlesex Hospital, with which he was associated, they had been obliged to get an overdraft for £15,000, against which their securities were pledged, and, even supposing that legacies were maintained in the coming year at the normal height, they would be adding to their debt at the rate of £3,500 a quarter, and by the end of the year would have exhausted their credit. He agreed that Sir Alfred Mond could not anticipate the report of Lord Cave's committee, but did suggest that he might make one helpful move. The financial difficulties of Middlesex Hospital were due mainly to the treatment of naval and military patients during the war. These occupied three-fourths of the beds during that period, and the cost to the hospital was £32,000 more than the Government paid. Surely that might be claimed as an ordinary debt. The figures had been checked by the hospital accountant and the auditors of the King's Fund. If this sum were repaid the hospital would be freed of debt, and they would have breathing space. If it could not be liquidated without delay, let the debt be acknowledged, and they would be able to borrow money against its acknowledgement. Lord Hambleden had expressed himself in the same sense at King's College Hospital, and other hospitals were in the same condition. They were not asking for a subsidy, but for payment for services rendered. It was the immediate difficulties which were daunting them. He looked upon the financial future of hospitals as fairly hopeful. The system of payment by patients had been introduced by many, particularly the Middlesex, and was promising really well; it had been accepted by the patients and recognized by them as just. Again, the generous decision of the National Deposit Friendly Society to devote one-third of their surplus—over £125,000—towards the payment of the cost of hospital and nursing services to members was a splendid sign to be imitated, he was confident, by all other approved societies.

Earl Winterton said he was interested in the negotiations between the London hospitals and the Council of Approved Societies in London. There was a possibility of getting a very much larger sum than Colonel Mildmay had mentioned, from this Council—approximately between £200,000 and £300,000. That would tide over the immediate difficulties. These negotiations were nearly complete.

Sir Watson Cheyne said he desired information on one or two matters. The first was, What (if any) alteration was to be made in the medical services? He presumed that something would be done, because they knew that the panel service could be improved and it would lie between improvement and introducing some new service—a form of State Medical Service. Personally, he should favour finding out what the defects of the panel service were, and trying to improve it, rather than scrapping it and introducing a new service, which certainly would not be at all favourable to the medical profession. Various things were required to bring the panel service into a better condition. Much assistance was required to help medical men to diagnose their cases and also in certain other matters. So far as his own experience in consultation had gone, he had not come across any evidence to support the accusations made against panel doctors, but he thought that in a few cases the statements might be more or less justified. When the Insurance Act was first considered, he was very doubtful about the question of medical benefit; he welcomed the idea of insurance against sickness, but questioned the advisability of the panel system. One thing wanted was to increase the free choice of doctors. The advantage of a greater choice of doctors would be to reintroduce competition to a very marked degree. He held that a State medical service was undesirable; one reason against it was patent to everybody, and that was that the State control of industries had not worked satisfactorily. Coming to the question of research, he deplored that the work of the Medical Research Committee had been transferred to the Privy Council. They were told when this was done under the Ministry of Health Bill that a certain amount of research was going on in connexion with the old Local Government Board, and that this might be developed. He understood that at present the Medical Research Council was ready and willing to assist the Ministry of Health. One of the great attractions for scientific men was to have an opportunity for investigation, and it was up to the Ministry of Health to help any of their staff who wished to do research and not to have to go to another body and ask leave. The existence of a proper Research Department was extremely necessary for the future of the Ministry of Health. For if any body required information it was that Ministry, inasmuch as matters connected with life, disease, and death were still in the melting pot, and questions must constantly arise which required investigation. At present there were remarks about research in the Estimates, but apparently not much was being done. The whole expenditure of the Ministry of Health on laboratory work was £700. There was a second heading under which some expenditure came and there were two special inquiries. He was not speaking in criticism but in the hope of hearing from the Minister that more was to be done in this direction.

Mr. Irving called attention to Circular 185 as in direct antagonism to the speech the Minister of Health had delivered. The circular, he said, was an attempt to save money along pettifogging lines in child welfare. It complained of expense in administration, and in other services in the distribution of milk.

The Minister's Reply.

Sir Alfred Mond, replying to a number of the questions raised, emphatically denied that Circular 185 was inspired by a niggardly spirit. The Ministry had introduced experimentally a new medical service in providing milk for expectant mothers and infants. The experience, after very careful investigation, had been that in certain areas this service had been grossly misused, and that everybody who had wanted milk for nothing had been getting it. Most sympathetic and competent lady doctors had told him that what had happened in various localities amounted to a gross scandal. All that the circular did was to require strict control of the milk, and to place the distribution under medical supervision. Coming to a complaint by Mr. Stewart, Sir Alfred said it rested with the local authority to make by-laws as to tents, vans, and sheds, and apparently they did not yet know what their powers were. The subject, he admitted, was not altogether free from difficulty as regards rating, and apparently as long as there was no epidemic his powers of intervention were small. Dealing with the speech of Sir Watson Cheyne, the Minister said he could set at rest any fears he had of a great extension of State medical service. There was no intention to start a vast system of State medical service. The Ministry was working on the lines of endeavouring to improve the panel system. The panel had been limited and reduced generally to a maximum of 2,000. An insured person not satisfied with his doctor could now leave him by mutual consent or after six months. They were making improved regulations in regard to surgeries. The panel system, he thought, had not worked so badly, and he believed that the medical profession had a great desire to do their best. He believed that the patients, on the whole, were satisfied with the service they obtained. Seeing that it was a great experiment, and the large number of medical men employed, he did not think very serious fault could be found. In his opinion there was a great deal of weight in the argument of Sir Watson Cheyne as to medical research. The question of voluntary hospitals had been giving him very grave anxiety; he expected the Cave report towards the end of the month. He was extremely sorry that certain of the large hospitals deemed it necessary, notwithstanding the fact that the report of the Cave Committee was so closely impending and that the Government would be bound to take action upon it speedily, to close those large numbers of beds, although in a few weeks the crisis might be passed. The Cabinet could not reasonably be asked to bring forward a scheme within the next few days. On the other hand, the approved societies had already set aside £250,000, to be paid during five years, out of their surplus. He should have thought it would have been possible for the hospitals to get their bankers to advance the comparatively small sums necessary for carrying on during the next few weeks. He wondered whether something could not be done in that direction even now.

Dr. F. E. Fremantle, in urging that the Ministry of Health, in its care for economy, should exercise discretion, referred to the case of a local authority which had made ruthless reductions in its estimate, with grave danger, he thought, to the large working-class population to whom it was responsible. On the other hand, he asked for an explanation of the enormous size of the administrative and clerical staffs of the Ministry, which exposed it to the criticism that there was too much red tape, too much letter writing, and too much filing work. He suggested that there should be a checking committee in each office, composed of members of the existing staff, whose duties it should be to decide the particular returns absolutely necessary. As for the medical staff, he had looked into the extra work which was being done and found that it was extraordinarily large. As for research, the Ministry of Health, in laboratory work, had performed to a great extent what Sir Watson Cheyne had said was not being done. That was the *ad hoc* work in regard to sanitation generally. It was only where the research was of a more general nature that it was done by the Medical Research Department under the Privy Council. He assumed that the Director of the last-named department was in touch with the Ministry of Health; if not, it would be not far short of a scandal to be looked into at once. He reminded the Committee that there were two kinds of research—the *ad hoc* and the research not directed to a special object, but of a general character. It was to get independence of administration that this latter research was placed under the care of the Privy Council. Dr. Fremantle argued from the actual vital statistics of the year that the Ministry of Health was engaged in a winning battle, and expressed the belief that the lessening of mortality was largely due to the improvement of services under the Ministry of Health.

Dr. A. C. Farquharson said he regretted to hear that Sir Alfred Mond proposed further to reduce the medical staff of the Ministry of Health, though this staff was getting collectively a sum rather less than one-third of what was being paid to the mushroom growth in connexion with housing. Instead of an increase in the payment of the medical staff, as had been suggested was the case, there was a diminution of something like £7,336, and the staff was to be reduced in the

near future. He was not concerned as to relative figures of the Local Government Board; he took the problem on its merits. These 80 or 90 medical officers recently appointed were to see that proper services were rendered in connexion with something like 6,000,000 or 7,000,000 insured people. They had to bring themselves into liaison with 12,000 or 13,000 doctors. They had to unite the work of approved societies and professional men. In terms of finance, they had the spending of something like £9,000,000 per annum. Yet a paltry sum of £100,000 was being spent on the whole medical staff of the Ministry of Health, while a sum of £300,000 was being spent on the excrescent growth in connexion with the housing scheme. These medical men were very eminent men who had acquired a reputation in their profession before they entered the Ministry, and they would give good service to the State. To propose to cut them down or turn any of them out was the most short-sighted policy of which he could think. As for research, he felt strongly that unless the Ministry of Health had a properly equipped laboratory and properly trained scientists, the functions which was laid upon it by statute in the Ministry of Health Act, must remain dormant. He recalled that it was at his instance that an amendment was made in the Public Health Act which placed the responsibility on the Ministry of Health for the direction and elucidation of research. So far as he could gather from the figures in the estimate, the total sum to be spent by the Ministry on research, including the payment for laboratory attendants, special inquiries into disease and pathological expenses, was £2,444. Compared with the sums that Continental nations had devoted to research, the figure was ludicrous. If this country spent upon disease one hundred times as much as it was spending already, that would not be a penny too much. Yet they had the Ministry of Health, to which they had looked forward with such hope, revealing from the very first its feet of clay. On the other hand, he congratulated the Minister of Health upon the increased expenditure in connexion with maternity and child welfare. Regarding the increase of over half a million sterling in the estimate for the treatment of tuberculosis, Dr. Farquharson said that in his opinion sanatorium treatment had broken down, and he suggested that the Minister of Health should exercise some limit of expenditure on schemes sufficiently tried to be pronounced upon as more or less failures. If there was one person more dangerous than another in respect of these matters it was the platitudinous politician who mixed his politics with sentimental notions regarding sanitary and scientific matters. The most recent scientific work went to show that in this country, at all events, it would be impossible to have a tuberculosis-free population. Dr. Farquharson went on to inquire as to the grant to the National Council for Combating Venereal Diseases. He understood that the amount was about £10,000. He did not doubt that the Society was doing good work, but why should a grant be made to one society and none to the other society which also probably had a good deal of wisdom in its ideas? He raised the question, moreover, whether the Ministry, which had every means of disseminating information, should delegate work of this sort. Finally Dr. Farquharson renewed his appeal to Sir Alfred Mond not to cut down the medical staff.

Mr. Jesson earnestly supported the appointment of the regional medical referees. He read an extract from a letter from a secretary of one of the largest approved societies, complaining of indifference by panel doctors to cases. He did not suggest there were many instances of the kind, but the regional referees would be able to correct them.

Major Birchall regretted any attempt unduly to curtail expenditure upon the Ministry of Health, which he regarded as the "key" ministry of all the other departments.

Dr. J. E. Molson said he regarded the expenditure on regional medical officers as very economical. As for research, he regretted that the department was not under the control of the Ministry of Health, and held that a great deal more money should be spent on this work.

Mr. Godfrey Locker-Lampson criticized the increases in staff salaries, more particularly in the higher secretarial grades, his point being that they went beyond scale increases.

Mr. T. Davies read a telegram from the Secretary of Joint Committees of Approved Societies, warmly supporting the appointment of regional medical officers, because a second opinion was valuable, and because any saving in benefit claims spelled economy. Taking his own experience, however, Mr. Davies added that in the country districts they were liable to miss these attentions. He said that if the Ministry of Health would send once in three weeks to the district of his society a doctor to perform such services, his society would pay £200 for the assistance. It was very difficult for one man to detect an obscure disease. Quite recently he had a case in which the doctor had certified for seven different diseases in seven weeks, and in reply to correspondence had remarked, "It is very difficult to say what is the matter with this particular patient."

Sir A. Mond, replying to various questions, said the salaries of high officials were fixed on recommendations (affecting other departments as well) by an independent Committee over which Mr. Asquith presided. The question of voluntary hospitals and Poor Law infirmaries, and the future of their complicated system, was engaging the very earnest attention of his department. It was extremely difficult. They did not want to destroy the voluntary hospitals and make them State-aided or rate-aided institutions. The voluntary system had been a very remarkable success; but, on the other hand, there was the possibility at a future date of developing Poor Law infirmaries. These were not questions for that moment, but were being considered. The vote was then passed.

Tuberculosis Bill.

In accordance with a pledge given by Sir Alfred Mond to Dr. Raw, a new clause was added in Committee in the House of Lords to the Tuberculosis Bill, in order to meet the cases of seamen. This was brought down from the House of Lords to the Commons on May 12th.

The Treatment of Bilharziasis.—Mr. Doyle asked, on May 12th, whether the Minister for Pensions was aware that Dr. Christopherson's antimony treatment was now accepted as a certain cure for bilharziasis; that the Australian Government, after segregating all returned officers infected in Egypt, had completely stamped it out by this method of treatment; that there are still a number of men in this country who were infected during the South African war, and were still sufferers, but who were debarred from treatment by the Ministry because they had not served (in many cases because of this disease) in the recent war; and if there were any reason why an exception should not be made in favour of these men so that they might receive treatment? Mr. Macpherson sympathized with the suggestion, and said he was communicating with the War Secretary about it.

Arsenobenzol Treatment for Venereal Diseases. — Mr. R. Richardson asked the Minister of Health, on May 12th, if he would give a return of all the cases of death arising from the ill effects of the arsenobenzol treatment of venereal diseases which had been reported to his department since the commencement of the public treatment of these diseases; and if he would arrange for such particulars to be recorded in future in his annual report or in that of the chief medical officer. Sir A. Mond replied that twenty-one deaths had been reported to his department as following the administration of arsenobenzol compounds in treatment centres of venereal diseases. Further inquiries show that in three of these cases death was not due to the administration of the drug, and that in five other cases it was doubtful how far the drug had contributed to the fatal result. In the last complete year for which figures were available, the number of deaths in which the administration of the drug had been a contributing cause represented one in approximately every 4,300 patients treated for syphilis, and one in approximately every 30,000 injections of the drugs. He would consider the suggestion in the last part of the question.

"*Lock-up*" *Surgeries.* — Mr. Doyle asked, on May 12th, whether the attention of the Minister of Health had been drawn to the increasing number of what were known as lock-up medical practices, where panel medical practitioners saw panel patients at fixed hours only, as they (the doctors) had only consulting rooms there, while they resided, it might be, miles away, out of reach of a panel patient in an emergency; and whether, in view of the hardship thereby incurred by the patient, he would consider taking action. Sir A. Mond said his attention had been called to one or two cases of the kind, and they were under investigation. If Mr. Doyle was aware of any such case he would be obliged if particulars were furnished. The regulations made adequate provision for dealing with such cases.

Medical Decisions on Attributability.—Mr. Forrest asked, on May 9th, whether the Minister of Pensions was aware of the growing resentment in the country, especially among ex-service men, at what were thought to be the unfair decisions in many of those cases in which a man with a long record of good service and an A1 health certificate on entering died soon after returning to civil life, from, according to medical testimony, some ailment not connected with his war service, but of which he never showed any previous trace; and whether steps could be taken, even if it meant some modification of the law, to meet such cases. Mr. Parker, for Mr. Macpherson, replied that he was not aware there was any feeling in the country that unfair decisions were being given. All cases were most carefully considered by experienced medical officers, and in every case where the claim was rejected on the ground that the disease was not attributable to, or aggravated by, military service the widow had a right of appeal to a tribunal which was independent of the Ministry.

Chemicals among the Key Industries.—References were made in debate in Committee of Ways and Means in the House of Commons, on May 9th, to the optical instruments and to the chemicals which are to come within the provisions of the Safeguarding of Industries Bill. The subject came up on the money resolutions which are being taken to prepare the way for the introduction of the measure after Whitsuntide. Optical glass and optical elements, microscopes and other optical instruments, thermometers, tubing and other scientific glassware, laboratory porcelain, a variety of scientific instruments and chemicals are included amongst the articles upon which an import duty amounting to 33⅓ per cent. is to be imposed. Sir William Pearce, in supporting the motion as a private member, referred to the report of the Balfour of Burleigh Committee and to the report of the National Health Insurance Commission, with regard to certain fine chemicals not produced in this country before the war.

The Committee on Hospital Finance.—The Committee on Hospital Finance, of which Lord Cave is chairman, has completed the taking of evidence and is now engaged on its report. The expectation is that this will be presented to the Minister of Health near the end of the month and published early in June.

Dangerous Drugs Act Regulations.—It is understood that the report of the Dangerous Drugs Act Departmental Committee is practically finished and will be available in a few days.

England and Wales.

LEEDS GENERAL INFIRMARY.

THE last few years have seen many changes at the General Infirmary at Leeds. Occurring, however, as many of them did, during the strenuous years of the great war, they have been left uncommented upon in these columns. There have been important changes in the personnel of the honorary staff; structural alterations and additions, begun before the outbreak of hostilities, have been brought to completion; a new ward pavilion with about one hundred beds has been in use for some two years, and has enabled the work to be kept up to the pre-war standard of numbers, while certain of the other wards are receiving that process of modernizing which the lapse of time has made necessary, for the infirmary was opened in the year 1868; the new theatres and out-patient rooms are now in full occupation; there has been considerable development in the *x*-ray department, which has been divided into two subdepartments under the care of two distinct officers, one of whom is at the head of the diagnostic section and the other at the head of the therapeutic section; the department for the treatment of venereal diseases is now fully organized, and will shortly have an addition to its staff; and the dental department of the Leeds Public Dispensary, having found the accommodation at that institution inadequate for the requirements of the growing school, has by the courtesy of the board found a temporary and very excellent habitat in the large out-patient hall which was opened in 1894, but which is now referred to as the "old" out-patient room. The nursing staff has been largely increased; a system of preliminary probationership has been instituted, and all candidates for full training at Leeds have now to undergo a three months' preliminary training; lectures are given by the honorary staff and by the university teachers, and a special tutor sister has been engaged for the work of teaching and supervising the work of the candidates at this stage of their training. These and many other matters of importance should be commented upon, not only as being of interest to former students of the Leeds school, the vast majority of whom have such cordial recollections of their clinical Alma Mater, but because the activities of a large teaching hospital must be of interest to the profession at large.

Changes in the Honorary Staff.

Dr. Churton resigned from the full staff in 1919 after nearly forty years' service, and was elected an honorary consulting physician with the right to the use of six beds. This system which prevails at Leeds was begun in the year 1884, when the rule, which of course was not made retrospective, was introduced that twenty years' service on the full staff was to be followed by promotion to the consulting staff. Under a self-denying ordinance the rule came into immediate operation by the resignation at the end of their twenty years' service on the full staff of Dr. Clifford Allbutt—as he then was—Mr. C. G. Wheelhouse and Mr. T. Pridgin Teale. For some years after his resignation Mr. Wheelhouse carried on an active professional career in Leeds, and then retired to Filey where he died a good many years ago. The activities of Sir Clifford Allbutt are known and admired by the whole profession, and many will be interested to learn that Mr. Teale gave an introductory address to the University Medical Society at the opening of one of its recent sessions, and that within the last few months he addressed the Leeds and West Riding Medico-Chirurgical Society on his favourite subject of lithotrity. The movements following on Dr. Churton's resignation created a vacancy on the assistant staff, and to this position Dr. J. Le Fleming Burrow was elected.

Mr. R. Lawford Knaggs resigned during the year 1919 from the position of honorary surgeon; he had acted on the full staff for eighteen years and was elected an honorary consulting surgeon on the recommendation of the board at a general meeting of the governors of the infirmary, who have the power to make such an appointment if they think fit, though the officer may not have acted on the full staff for the normal term of twenty years. The compliment was well merited in the case of Mr. Knaggs, whose work has always been characterized by unflagging zeal. In passing, it may be mentioned that since leaving Leeds Mr. Knaggs has completed a very important piece of work for the Leeds school which has occupied a large amount of his time for many years. This has consisted in the complete revision of the catalogue of the bone and joint section of the pathological museum at the medical school—a work which has entailed a careful examination and remounting of most of the specimens in that section. This catalogue is shortly to be printed. The vacancy on the assistant staff brought about by Mr. Knaggs's resignation was filled by the election of Mr. Alfred Richardson to the position of assistant surgeon.

Mr. H. Secker Walker, having served his period of twenty years on the full staff in the ophthalmic department, has also been elected a consulting surgeon. Mr. Walker, to the regret of his many friends, has left Leeds for Wiltshire. Mr. Constable Hayes resigned his position on the honorary staff in 1918 and has left Leeds for Gloucestershire. The vacancies in the ophthalmic and aural departments caused by these resignations have been filled by the appointment of Mr. Harry Lee to the former and of Mr. W. Maxwell Munby to the latter department.

Dr. J. B. Hellier, who was elected obstetric physician in 1899, completed his term of service in 1919 and became honorary consulting obstetric physician, being succeeded by Mr. Carlton Oldfield. The title of this post, "obstetric physician," gives a wrong impression of the character of the work. The holder of the post is, of course, essentially a surgeon, and in future he is to be termed such. Dr. Hellier's connexion with the Leeds school has been a long and honourable one; he was a student of the school; he acted as demonstrator of anatomy; he taught materia medica and founded the museum; he lectured on gynaecology, and for many years was professor of midwifery. His interest in the school and in the welfare of the students has never flagged, and he has been unsparing of time and of effort to promote the best interests of the university and of the infirmary. He is still in full consulting work, and at the special request of the Faculty of Medicine he has consented to continue to act as honorary librarian for the joint-library of the medical school and the Medico-Chirurgical Society. He is engaged, it is understood, in writing a history of the Leeds School of Medicine.

To the great regret of his friends, Professor Leyton resigned the professorship of pathology owing to ill health. The position of professor of pathology is essential to qualify anyone to act as pathologist and director of the pathological laboratory at the infirmary, and Mr. Matthew J. Stewart was appointed in succession to these two positions by the Council of the University and the Special Election Committee of the infirmary. Of the developments and future of the pathological department of the infirmary and of the university more may be said hereafter. Mr. Stewart's work as curator of the pathological and clinical laboratory at the infirmary brought him into relation with all the members of the honorary staff, and his election to the important position of professor of pathology was universally welcomed.

In connexion with a prospective and more intimate connexion between the infirmary and the school of dentistry certain temporary changes in the manner of conducting the dental work of the infirmary are being developed. Mr. Hordern, who has been honorary dental surgeon to the infirmary for a good many years, has been promoted to the consulting staff.

Death of Mr. Edward Ward.

This is not the place for any lengthy reference to the death of Mr. Edward Ward. A short obituary notice appeared in the JOURNAL of May 14th. Any reference to the changes in the personnel of the staff would, however, be very imperfect which did not express the deep regret of all who are connected with the university and with the infirmary and their sorrow in the loss of a well-loved colleague.

Statistics of the Infirmary.

In anticipation of the annual meeting of the infirmary, which is usually held in March, but which this year has been postponed till May 25th, the usual statistical tables of the numbers of patients attended to in the various departments during the year 1920 has been issued. The total number of patients treated within the walls of the infirmary as in-patients was 9,480—practically the same

as during 1919. It is of interest to note that during 1913 the number was 9,015. It has been explained above that the number of available beds has not in the meantime been increased by the opening of the new ward pavilion, and these figures may be taken as an indication that the infirmary is working, as it was in 1913, up to the limit of its resources. Of the new patients admitted 3,914 were men, 3,347 were women, and 1,500 were children. Four hundred and twenty-one patients remained in the infirmary and in the semi-convalescent hospitals on January 1st, 1920, and the balance of 298 was made up of service pensioners referred to the infirmary by the Ministry of Pensions. The average number of patients at the infirmary was 363, and at the two semi-convalescent hospitals 113. The number of new out-patients was 20,109, and of casualties 15,969. In addition there were 3,128 new cases in the venereal department. Operations were performed on 5,378 in-patients and on 3,929 out-patients.

War Memorial at the Liverpool Medical Institution.

On May 11th, in the presence of a large number of members and ladies specially invited, a war memorial tablet, the gift of Mr. W. Thelwall Thomas, was unveiled by the Right Rev. the Lord Bishop of Liverpool, Dr. Francis Chavasse. The president, Dr. John E. Gemmell, occupied the chair, and briefly set forth the reason for commemorating in bronze those members who had paid the supreme sacrifice in their devotion to duty in the great war. In the name of the Institution he conveyed the thanks of the members to the generous donor. Mr. Thelwall Thomas, in acknowledging their appreciation, mentioned the fact that the number of members of the Institution was under 400, yet on the tablet fourteen names were inscribed who had served their country even unto death. The Lord Bishop delivered a short address before unveiling the memorial. He referred to the painful distinction conferred upon him —his son's name, Captain Noel G. Chavasse, V.C., with bar is recorded—and said, "No body of men gave more of their sons and daughters to fight and work and fall than the doctors of Liverpool. We owed these men a debt of gratitude for the high ideals they set before us, and their names should ever be before us as examples of faithful service and loyalty to their country. To such we owed our deliverance from a tyranny that knew no pity and no shame."

The memorial tablet was executed by a Liverpool sculptor, Mr. Tyson Smith. It is of bronze, with the R.A.M.C. motto, "In Arduis Fidelis," inscribed on the capital. Underneath, "In honoured memory of members of the Liverpool Medical Institution who gave their lives for their country." There are fourteen names, preceded by their respective ranks, and on either side are reversed torches, with the naval and military crests of the medical service. The memorial is chaste in design and was much admired. It occupies a conspicuous position in the vestibule of the institution.

Liverpool Royal Infirmary.

Mr. Robert Kennon has been appointed an honorary assistant surgeon to the Liverpool Royal Infirmary. He is M.D. of the University of Liverpool and F.R.C.S. For the past twelve years Mr. Kennon has held with distinction posts in connexion with the university. He saw active service during the war, was awarded the M.C., and was twice mentioned in dispatches.

India.

Venereal Diseases: Treatment in India.

The League for Combating Venereal Diseases, Bombay, has been in existence since March, 1917, and its work in that city is, we believe, a pioneer effort in the direction of combating venereal disease among the civil population of India. According to the third annual report of the League (1920–21) the incidence of venereal diseases in India is much higher than in England. As the provision of greater facilities for the modern treatment of venereal diseases was considered the first essential in the campaign of the League, attention so far has been specially devoted to the dispensary which was founded, and is being conducted, under its control. From the report of the dispensary's medical officer it is evident that the work that is being done there is of a high standard, but as no more than 1,224 patients were registered during the year under report (of whom 217 were diagnosed non-venereal), only the fringe of the problem can yet have been touched in a city of the size of Bombay. The medical officer points out that the dispensary building is greatly lacking in privacy, and suggests that a general dispensary might be attached in order to induce patients to attend without having the nature of their ailment made so obvious; this recommendation is worthy of attention if a more suitable building cannot be secured. He emphasizes also the necessity for the provision in Bombay of facilities for the ante-natal and post-natal treatment of pregnant married women who have been infected by their husbands. Subsidiary centres for early treatment are also recommended in his report; irrigation stations have already been established for the daily lavage of gonorrhoea cases from the dispensary at a few municipal dispensaries in crowded parts of the city. Here again, however, the number of patients treated—84 in seven months—seems out of proportion to the work entailed. There is little doubt, therefore, that the stage of the League's campaign which is to come next—a vigorous educational propaganda—is very necessary if the population of Bombay is to benefit from the provisions which have already been made. It is intended to arrange a series of lectures in English and the vernaculars at different centres, and to distribute leaflets. A dissemination of the knowledge of the physiological laws of life, particularly among the lower classes of the population, should open their eyes to the seriousness and the grave consequences of venereal diseases. This propaganda should also create and develop a public opinion in favour of the League among all classes of society, and it is to be hoped that it may obtain the general support which it deserves, and that the campaign which it is conducting will spread throughout India.

Civil Assistant Surgeons.

A new scale of pay for civil assistant surgeons has been announced by the Ministry of Local Self-Government, subject to the limit sanctioned by the Secretary of State. The revised scale provides for pay of Rs.200 a month on first appointment, with biennial increase of Rs.25 till the eighteenth year of service. There will be grade examinations at the seventh and fourteenth years, and, at a later period, an efficiency bar is prescribed. There will be two senior grades, to which promotion will be by selection; these grades will contain four posts of Rs.425, and four posts of Rs.450. Civil assistant surgeons appointed to civil surgeoncies will draw Rs.500 by annual increments of Rs.50, and annual increments of Rs.100 for those with over five years' service to Rs.700. There will be one selection post of Rs.1,000, which will be open to officers of the Indian Medical Department and civil assistant surgeons. The new scale is to have effect from April 1st, 1920.

Correspondence.

HEART-BLOCK AND THE ADAMS-STOKES SYNDROME.

Sir,—At the Liverpool Medical Institution (British Medical Journal, May 14th, p. 704) Dr. Harris expressed the opinion that in heart-block the Adams-Stokes syndrome signified degeneration of the heart muscle. It is very difficult to understand why this syndrome appears in some cases of heart-block, but not in the majority. Yet I fear Dr. Harris's explanation may fail us. Two or three times I have had reason to believe that this explanation could not be accepted as a general rule. One case in particular seemed to be to the contrary.

An elderly gentleman in whom for some years a harsh systolic murmur had been audible at the base of the heart, began to suffer from bradycardia. A little later, when his pulse rate had fallen to 30–20 the Adams-Stokes syndrome appeared. The malady increased slowly but inexorably. I often counted his ventricular pulsations as low as 12 or 10,

or even less. His own physician, the late Mr. Hyde Hills, more than once counted it at the rate of 6! The Adams-Stokes syndrome was intense, and the syncopic and convulsive series were frequently repeated—often more than once in the day.

After death an aortic stenosis, evidently of very long standing, was discovered. The fibrous condensation, beginning no doubt at the aortic collar, gradually invaded the *a–v* structures. Now the heart, in obedience to the increased obstruction, had hypertrophied, and become very large and powerful. Macroscopically it appeared sound and firm; and microscopically, beyond a slight degree of fibrosis, it presented little or no default.—I am, etc.,

Cambridge, May 14th. CLIFFORD ALLBUTT.

ECLIPSE BLINDNESS.

SIR,—I read with interest the article on eclipse blindness by Dr. Lodge, in the BRITISH MEDICAL JOURNAL for May 14th, and having, like I suppose most ophthalmologists, seen two similar cases following the recent eclipse, I would like to make a few comments, mainly supporting Dr. Lodge's arguments.

The first case that I saw was a girl of 18, who was led into my consulting room by the hand as though she were blind, three days after the eclipse; her history was that within a few minutes of looking at the eclipse through moderately black tinted spectacles, she had great pain in the eyes, and then "everything looked blank" when she looked at it. I found the central vision in each eye to be considerably less than 6/60, due to a large central scotoma for both white and colours; it seemed quite evident that peripheral vision was relatively unaffected, though vision was so defective that it was impossible to obtain any chart of her visual field on the perimeter. Both pupils reacted normally to light, and on dilatation with homatropine a careful examination of the fundus revealed no definite pathological appearances, beyond possibly a slight injection of both discs; a subsequent examination twelve days later still revealed no pathological changes in any part of the fundus.

This case is evidently very much more severe than either of those quoted by Dr. Lodge, and one is very uncertain as to the prognosis—subjective symptoms in her case were severe, particularly pain at the back of the eyes and through the temples, which lasted for about a fortnight and had to be relieved by opiates; there was also, for the first few days, a good deal of photophobia, though no trace of redness of the anterior parts of the eyes. Dr. Lodge suggests the possibility of confusing retrobulbar neuritis with this condition, but in this girl there was nothing to suggest it, the pupil reactions being perfectly normal and contraction well maintained when a light was kept focussed upon them; moreover, the girl appeared to be in perfect health. The actual change which takes place at the fovea is a matter of conjecture, and it is instructive to see that vision can be so profoundly affected as in this case, without there being any alteration in the retina that can be detected with the ophthalmoscope. If microscopical examination of the retina in a case of this sort could be obtained, it would no doubt throw light on the condition, but, so far as I can discover, this has never been done, owing no doubt to the difficulty in obtaining such an eye for examination.

Many ophthalmic surgeons after previous eclipses have described changes in the fundus consisting of a small yellow speck surrounded by an abnormally red appearance at the fovea in such cases—an appearance which it must be difficult to differentiate from that of a physiologically normal fundus. The two cases recently seen by myself support Dr. Lodge's contention, that there are no changes visible to the naked eye in the majority of such cases.

The symptom that Dr. Lodge describes as metamorphopsia was not present in this girl, as her vision was affected too severely for her to be able to appreciate it had it been present.

In view of these cases it certainly seems advisable, as Dr. Lodge suggests, that in future, before an eclipse, the public should be adequately warned, through the medium of the press, or in some other way, of the danger of looking at the eclipse without proper protection, tinted glasses being entirely insufficient to give such protection. If the injury to sight in such cases as the one to which I have referred is permanent it is a disaster which could and ought to be prevented in future.—I am, etc.,

Norwich, May 16th. G. MAXTED.

THE PREPARATION OF SCIENTIFIC PAPERS.

SIR,—In his letter printed in your issue of May 14th Sir James Barr is good enough to offer a series of "rules" for the guidance of writers engaged in the construction of scientific papers and in the preparation of such papers for publication. These "rules" may be accepted, I suppose, as the fruit of Sir James's considerable personal experience—in part as a contributor to medical journalism, in part as a critic, not to say a censor, of the literary efforts of others. They therefore come with a certain presumption in their favour, and the gratuitous quality of the offer adds grace to the occasion. But why is Sir James so angry with other authorities, and these not deficient in experience, who adopted at an earlier date the course he now pursues? The Medical Research Council and the BRITISH MEDICAL JOURNAL have each made a contribution to the end which Sir James himself is anxious to serve, and surely both the one and the other, on such a topic, have an abundant title to speak. Yet for their efforts Sir James has no larger measure of courtesy than the borrowed exclamation, "Sack the lot!" If such is the appropriate fate for advisers with whom Sir James Barr does not happen to agree, is there not some risk that he himself may fall into a similar catastrophe? The iconoclastic temper is apt to prove infectious, and, strange as it may seem to Sir James, not everyone will accept him as an instructor, even on the generous terms he proposes, for while in some respects his advice may be generally allowed, his performances do not invariably rise to the level of his precepts.

Sir James Barr not only provides "rules" for the literary aspirant, but in his criticisms of your leading article (April 23rd) he concerns himself with various questions of literary style, or at least of literary expression, and his comments may reasonably be examined in reference to his voluntary appearance as a director and guide. With his ban upon "superfluous" words, readers in general and editors in particular will doubtless be in complete accord. But is Sir James very fortunate in the example he selects? He condemns as "superfluous" the "it" in the sentence, "his [Gibbon's] notes . . . usually contained matter which he judged *it* becoming to veil in the decent obscurity of a dead language." Yet in an earlier paragraph he himself writes: "Why the Medical Research Council should have found *it* necessary to issue such instructions I cannot say." If the one "it" is superfluous, why not the other? A few lines from the judgement above recorded Sir James complains of your contributor that he writes "as if he had not got an independent opinion of his own." Critics may possibly differ as to the elegance of this phrase, but on the most liberal construction is not "got" superfluous? And would anything be lost if the words had run "as if he had not an opinion of his own"? In his specific instructions to intending authors Sir James tells us to fasten our papers with "an ordinary paper fastener," and in view of his fashion of searching criticism I feel bound to ask, Is not "ordinary" superfluous? On the point here in issue Sir James gives us excellent advice, but he scarcely lives up to the height of his exhortation.

Another instruction Sir James Barr offers to the author and writer is "learn when and where to place capital letters." The advice is hortatory rather than helpful, and illustrative guidance is hardly to be found in Sir James himself, for in his letter he writes "the Tower of Siloam," whereas both in the Authorized Version and in the Revised Version the phrase is "the tower in Siloam." Here Sir James is as unhappy with the preposition as he is with the capital letter, and this is the more remarkable seeing that for accuracy in this respect he urges a high demand. He will not suffer your contributor's phrase "a drawing should be made *in* Indian ink," and he insists upon the correction "*with* Indian ink." I wonder whether he would allow such a description as "a worker in brass and iron" or "a painter in water colours."

Really Sir James Barr would be more effective if he always practised the precision and accuracy to which he invites us. He directs, for example, that when numerous corrections have been made in a typewritten article the "revised version" should be "again typed." Would not a critic, following Sir James's severity, be justified in remarking that as the "revised version" has not yet been typed it is impossible at the present stage that it can be "typed again"? Finally, to complete the series, while

other guides to literary excellence warn us against the "split infinitive," Sir James gaily writes "she wished to strongly express." He thus compels the doubt whether we can afford to accept him, to the exclusion of others, as a master and exemplar in the craft of authorship. He proclaims a lofty standard and for this we owe him thanks. But his censures are not always supported by his performances.

To the classical advice, "Verify your references," Sir James naturally gives unqualified support. He tells us, indeed, that a certain discovery "necessitated me verifying the references," though, fortunately, he does not ask us to parse this phrase. Here again, however, devotion to an ideal is found to be not inconsistent with some laxity in practice. Your contributor (April 23rd) has a sentence, "he [the compositor] ought not to be put to the test." Sir James makes this read, "he ought not to be put to *that* test," and on this misquotation and "in the name of common sense" he founds an indignant protest. So true is it that even Homer sometimes nods, and that a profession of "common sense" may at times be associated with something that looks amazingly like common carelessness.

Sir James's advice to editors—a third feature of his letter—hardly concerns me, as my own editorial career, always obscure, was closed some years ago. Yet from some of his remarks I fear Sir James has found certain editorial departments not up to his standard. Happily there is one bright spot. It is provided by an American paper "to which I occasionally contribute." This paper boasts an "intellectual" editor, who, by an interesting coincidence, never "mutilates" Sir James's contributions. The inference for those who covet the complimentary adjective is an obvious one. The model editor, we are told, "should allow his ideas . . . to flow freely." Is it not an equal editorial virtue to allow Sir James's ideas to flow freely?

Those of us who aspire to be pupils rather than professors may, doubtless with advantage in some respects, take note of Sir James Barr's advice, even though, while pointing to brighter worlds, Sir James does not himself always lead the way. But we are little likely to join in a cry for the "scrapping" of editors, researchers, councils and journals in order to put Sir James Barr on the throne. These threatened authorities may remember with encouragement that Charles II lived without fear of assassination because, as he explained to his brother, "They will never kill me James to make *you* king." We had better suffer the whips of Solomon than invite the scorpions of Rehoboam. And if, in turn, the occasional contributor may venture a modest word of counsel to those who are so anxious for his improvement, it would be to remind each of these benevolent instructors of the importance of steadily supporting precept by example, "lest that by any means, when I have preached to others, I myself should be a castaway."—I am, etc.,

London, W., May 16th. C. O. HAWTHORNE.

THE PREVENTION OF PUERPERAL INFECTION.

SIR,—In your leading article based upon Dr. Blair Bell's able paper in your issue for May 14th a matter of enormous importance to the general practitioner is raised. You lay down a standard of asepsis in midwifery which many will regard as quite impracticable. You state that in a case of normal labour no vaginal examination should be made unless absolutely unavoidable, and that in all cases the patient and the attendants should be prepared as for a major operation.

I do not say that anyone will deny this as an ideal, but I think every conservative-minded practitioner will regard it as an impossible one, and I believe a frank discussion of how far this is so to be a matter of great practical moment.

Personally I am a general practitioner who does a certain amount of midwifery, and also a fair amount of major surgery. I am quite convinced that the amount of skill and experience required in any difficult obstetric operation is fully as great, and the issue, since two lives are involved, is greater than in a large number of major surgical operations—for example, the operation for acute appendicitis. Yet I am forced (and so is everyone else under the same conditions) to perform the first operation under thoroughly bad conditions, and for absurd fees, while there is no difficulty in getting ideal conditions for the poorest person in the second operation, and where fees are involved they are adequate.

What is the chief reason for this state of affairs? It is the fact that custom and usage in connexion with obstetric operations dates back far beyond the first dawn of asepsis and far beyond the present status and organization of the profession, while that connected with major surgery has been recent and followed both. The old tradition of general practice that midwifery was the basis of it, and as a matter of business must be secured at nominal and wholly artificial fees, is the main trouble. Tradition dies hard, but the fact remains that the advent of the midwife is fast rendering this belief a mere tradition, and with the midwives lies, Sir, in my opinion, the only hope of realizing your ideal.

It is not the slightest use expecting the busy doctor to act as a good midwife. If he is doing the midwife's work he must make frequent vaginal examinations, and he certainly will put on forceps much too often to do all the other things that Dr. Blair Bell deprecates. Patients who want a doctor to act the part of a good midwife must be prepared to pay such fees as are quite out of the question for the vast majority. It is, and should be, a luxury for the rich. The first of your propositions—absence of vaginal examinations—can only be obtained by the presence of a patient and skilled person with the woman for many hours. This person is naturally the midwife. Your second proposition, that any interference with the confinement must be treated as a major operation, is much more difficult of attainment, but it is psychologically impossible to the doctor who tries to act as his own midwife. It involves education of the public and of public bodies to regard it as a major operation. Only when they put it in the same category as appendicectomy will it be possible to do it under the same conditions.

Let me conclude by tabulating my ideas of how the change can be brought about.

1. We must encourage midwives in every possible way, and we must try to raise their educational standard and their fees. Every case should be attended by a midwife, with a doctor in the background to come in if an operation is to be performed.

2. We must try and get this idea that interference is an operation more and more into our own heads and that of the public and of public bodies—that it is an operation, and that it must be paid for as an operation.

3. There is no reason whatever why every general practitioner should practise obstetrics any more than he does major surgery. What would the standard of surgical work be like if every family doctor, whether his tastes lay that way or not, were compelled by the force of public opinion to operate on his patients for all surgical emergencies? It would be far better if obstetric work were undertaken only by those who really liked it and were interested in it, working in conjunction with the midwives, and having at their disposal adequate lying-in wards at every hospital. There is only one necessity to secure this, and that is money. No small group of practitioners is going to undertake the extremely arduous task of doing practically all the serious obstetric work of a town unless it is made to pay them at least as well as it pays the small group who at present undertake the major surgery, but under these conditions I am convinced the men would be forthcoming, and the other men of the town would be only too glad to be relieved of the necessity of undertaking the midwifery to keep the family in the practice.

I fear that any real advance in this direction will remain an ideal so long as such fees are accepted as I notice in the same issue of the JOURNAL as proposed by the Scottish Board of Health. The comparison between that table of fees and Dr. Blair Bell's article is most instructive. The rule that you cannot get good work without paying for it is not to be set aside by any amount of preaching of the ideal. We must raise the whole status of the obstetric operation.—I am, etc.,

Dover, May 16th. A. R. JORDAN, M.D., F.R.C.S.

SIR,—Again the heavy guns have opened on the general practitioner and the midwife, and we are told for the *n*th time that we are responsible by our negligence for the unsatisfactory results disclosed by the Registrar-General's report on maternal mortality. But our withers are unwrung, and again the result will be a tolerant smile on many of our faces, and some facetious remarks about those who have opened the bombardment. And it always

will be so until those in high places mend their ways and supply opinions gained from tested observations in place of some of the *a priori* generalizations that are usually thrown out.

It is a pity that there has grown up two techniques of midwifery—one that taught in the schools, and the other that practised on the major part of the population. But to think that the latter is due to mere carelessness is a mistake. The practitioners feel that in default of better instruction they must rely on their own observation and evolve their own technique.

The general practitioner still retains some remnants of his scientific training, and likes evidence in support of *obiter dicta*. So as one of them I should like to ask whether there is good evidence that—

1. Labours conducted as major operations are less liable to sepsis than those conducted with ordinary cleanliness?
2. Easy labours without vaginal examination are much less liable to sepsis?
3. Puerperal infection is really less prevalent in the homes of the well-to-do who are attended under so-called ideal conditions?
4. Puerperal infection is more common after such operations as simple forceps delivery or manual removal of a retained placenta than in labours ended by nature alone?
5. Infective organisms are almost always conveyed into the vagina and uterus by the attendant's hands and instruments?

Also I should like to ask:

6. Will a staphylococcus go up into the uterus on the surface of a rubber glove as easily as on a washed finger?
7. What is the exact mechanism by which a sterilized overall or a face mask prevents infection of a patient's uterus?
8. Does examination of organisms found in cases of puerperal sepsis supply any conclusive evidence of their origin, whether from the perineal skin, the skin of the attendant, materials used at the time, or from such external sources as pyorrhoea or otitis in patient or attendants?

In most cases I think the general practitioner would say that as far as his experience goes the answer to questions 1 to 5 is in the negative, but he is open to receive evidence, but not *a priori* assumptions, to the contrary.

Frankly he is puzzled by the fact that he knows he is far more aseptic than he was thirty years ago, but the figures of sepsis remain practically unchanged, and he is inclined to think that the fault may be that of his teachers, who may be chasing a will-of-the-wisp with their cry of still more asepsis, when possibly what is really required is more intelligent efforts to find out the real mechanism of infection and a new technique to meet it.

And so the big guns will boom to no effect until they show that they base their dicta on carefully verified observations, and show more respect for exact reasoning than they seem inclined to do.—I am, etc.,

Cambridge, May 15th. C. M. STEVENSON.

SIR,—Are the methods recommended in your issue of May 14th at all practicable in dispensary and working-class practices, which must furnish a very large percentage of confinements throughout the country?

I have been in general practice two years, and, though I started with ideals quite in line with the recommendations, I find myself gradually adopting quite a different course of procedure owing to force of circumstances.

1. With reference to the application of forceps, I used to be terrified at the idea of putting on forceps to save time; now I am all in favour of getting the case over as quickly as possible owing to the pressure of other work coming along. When there is delay in the second stage caused by partial inertia, I ask myself the question: "Are you satisfied that you can deliver the woman with forceps if the injection of 1 c.cm. of pituitrin does not finish the labour in fifteen minutes?" And if I am satisfied that I can, then I give it, with so far the happiest results both for the anaesthetized patient and myself.

2. With regard to asepsis, I was amazed to find how many women were practising as maternity nurses who never used antiseptics during or after the confinement, nor did they provide themselves with such a luxury as an enema syringe. All talk of aseptic midwifery is beside the mark so long as such persons are allowed to compete with the regular midwife.

Any attempt to instil better ideas into this class of nurse only results in your cases diminishing in number in the area where they work, and the nurse is usually engaged first and the doctor afterwards.

I am writing from the working-class end of a good London suburb, so such conditions cannot be exceptional. I do not think that there is likely to be any change in the conduct of midwifery practice and the results as regards puerperal infection till general practitioners frankly state how they conduct their maternity practice, and then, if possible, better methods of action could be decided on, having due regard to the actual difficulties of the situation.

Such an inquiry could surely be made by the British Medical Association through its Branches, and results obtained which would have a real effect on the incidence of puerperal sepsis.—I am, etc.,

May 13th. C. M. A.

PREVENTION OF VENEREAL DISEASE.

SIR,—Lord Gorell states in his letter, which you printed in your issue of May 7th, that there is now admitted to be but one point of difference between the two societies. In order that your readers may appreciate the extent of the difference it is necessary for them to read our letter to Lord Gorell of April 22nd, which was not published in full in the BRITISH MEDICAL JOURNAL. We adhere to the position defined in that letter, and are still ready to meet the National Council for Combating Venereal Diseases according to our letter to the Bishop of Birmingham of February 25th, accepting his invitation to a round table conference, on the understanding that the National Council for Combating Venereal Diseases were prepared to take action forthwith on the terms of the report of the Bishop's committee.

The National Council for Combating Venereal Diseases did not accept this invitation, therefore the conference did not take place.—We are, etc.,

WILLOUGHBY DE BROKE,
President of the Society for the Prevention of Venereal Disease.

H. BRYAN DONKIN,
Vice-Chairman, Executive Committee, S.P.V.D.

H. WANSEY BAYLY,
Honorary Secretary, S.P.V.D.

London, W., May 13th.

Dear Lord Gorell,

I am desired by the Executive Committee of the Society for the Prevention of Venereal Disease to thank you for your letter of March 22nd, enclosing a definition of the policy of the National Council for Combating Venereal Diseases, which you tell me had been accepted by Dr. Addison.

We do not know whether Sir Alfred Mond will accept your policy as stated in the "eight points" that you sent to us, but I am afraid it is not acceptable to this Society. It appears to us to amount to nothing more than a restatement of a policy which has admittedly failed to arrest the spread of venereal infection. Indeed you admit this failure in your first point, in which you state that "the nation and the world is, in venereal disease, confronted with a terrible menace to its welfare."

I am sure you will agree with us that venereal disease is not only a formidable menace to national health, but is also a most damaging form of waste, both in men and money. We therefore submit with great respect that it is a matter of grave public concern that the National Council for Combating Venereal Diseases has still no policy to offer except a continuance of a method that has been accompanied by an alarming incidence of venereal disease at a heavy cost to the nation.

It was surely not unreasonable to expect that, after the Bishop of Birmingham's committee had endorsed the practice of immediate self-disinfection, the National Council for Combating Venereal Diseases would at least show some relaxation in their hostility to the policy of the Society for the Prevention of Venereal Disease.

Such recognition as the National Council for Combating Venereal Diseases gives to the value of immediate self-disinfection, although the term is definitely avoided in your definition, appears to us to be inconsistent. You would seem to recommend that personal cleansing immediately after incurring the risk of infection is an essential point of instruction in sex hygiene; and you advocate the public removal of any disability or misapprehension that may now exist with regard to the sale by chemists of disinfectants. But the practical value of this recognition is rendered nugatory by your statement that no instruction in the use of disinfectants should be officially issued, and that disinfectants in connexion with venereal diseases should not be recommended to the public.

We submit that the policy of immediate self-disinfection is either right or wrong. If it is wrong, every conceivable influence should be brought to bear against it, and it should not be countenanced in any shape or form, even to the extent of the use of soap and water. If it is right, it is a weapon which the State is bound to use in the prevention of venereal disease, and the Ministry of Health should take in hand forthwith the necessary and simple instruction in the correct use of disinfectants by those who persist in running the risk of infection. Some knowledge of immediate self-disinfection is already public property.

We had hoped that you would admit the necessity of official instruction in this matter. We might then have joined forces for the purpose of considering the best method by which this instruction should be given. Union, therefore, is impossible unless your society definitely endorses the principle of immediate self-disinfection.

We yield to no one in our support of the moral crusade. But the moral crusade taken by itself is demonstrably inefficient. We deeply regret that the National Council for Combating Venereal Diseases has little or nothing to recommend except a vast expenditure of money for moral propaganda and an attempt to cure established disease that might have been prevented. Meanwhile venereal infection is proceeding at an alarming rate, and the policy of immediate self-disinfection involves neither delay nor money.

We propose to send this letter to the Press, together with your letter of 22nd March.

I am,
Yours very truly,

April 22nd, 1921. (Sgd.) WILLOUGHBY DE BROKE.

REFRACTION WORK AMONG SCHOOL CHILDREN.

SIR,—Not long ago I was an applicant for a post as school medical officer and I was asked how many refraction cases I could do in an hour. Having always used both the objective as well as the subjective tests and knowing the difficulty with school children, I replied that three cases was a good average. I was at once told that at least six was expected, and I have been puzzled ever since to learn how this number could be done properly. Now I know. Mr. Bishop Harman, in his article, "The axis of astigmatism" (May 7th, p. 666), has let the secret out of the bag. They only use the objective method, they do the retinoscopy and prescribe what they consider to be appropriate spectacles from this alone. I could do six or more cases an hour by this method, but the results would be nothing comparable to those obtained from the use of subjective tests, also testing the vision by means of Snellen's types.

I was in hopes that some ophthalmic surgeon would have taken up the challenge that only objective tests are necessary in school children; but I suppose it is a delicate matter to differ from a colleague who writes in the BRITISH MEDICAL JOURNAL as an authority on the subject. But I appeal on behalf of school medical officers in general that we should be protected against statements of this kind, and that we should be allowed to do our work in the way we are taught at Moorfields and other eye hospitals, and give the preference always to the subjective test, using the retinoscopy only as a guide.

The use of the retinoscopy as the sole test is compulsory in infants and young children, but if it is not combined with subjective tests in older children in school clinics there will be still more cases than at present of these children coming to the hospitals to get their glasses changed.

With everything else in the article I am sure we all agree, and thank Mr. Bishop Harman for his lucidity.—I am, etc.,

ARTHUR E. LARKING, M.D., D.P.H.,
May 16th. Assistant Local School Medical Officer for Bucks.

THE EARLY DIAGNOSIS OF ACUTE ABDOMINAL AFFECTIONS.

SIR,—I hope Mr. McAdam Eccles will not think me hypercritical if I suggest that, in his comprehensive paper on the acute abdominal affections, he has done scant justice to a classical sign when, in speaking of "perforations," he says: "Better to explore than to wait for advanced signs, such as loss of liver dullness."

No doubt the surgeon pays little heed to this sign, and no abdomen is ever opened because of its presence alone, or left unopened because of its absence. But I do trust no one, for many a day, has ever waited for its development. It appeals more to the physician who desires to make the diagnosis absolute before calling in the surgeon; and, of all the signs in medicine, I can think of none that conveys such certainty, almost such completion, of diagnosis, if it can be safely affirmed to be present, and the deduction of free gas or air in the peritoneal cavity be justifiable. It is not the loss of liver dullness that is valuable, for that is present in many other conditions, but the deduction that this loss of dullness is due to free gas within the peritoneal cavity. In making this deduction there are a number of absolute conditions to be observed. Chiefly, these are the time of its occurrence, the associated signs, and the associated general contour—size of abdomen, shape of chest, and obesity, or otherwise, of the patient. It is an early sign, and only of value when early—within the first few hours. To speak of it as a late sign is to miss its application and cultivate a dangerous fallacy. Once the abdomen has relaxed, or the least distension appeared, the sign is valueless and misleading. It may, and does, appear almost immediately after some perforations, or very shortly after; it can be noticed to have appeared between a first visit and a second visit paid a few hours later. It is essential that the abdomen be obviously rigid and retracted and more or less motionless. Its value lies solely in its association with these signs. Nor must it be trusted to in very obese people, nor in those with deep barrel-shaped chests or emphysema of the lungs. Such people may have no appreciable liver dullness at any time. But in well-shaped adolescents, thin people, or those with abdomens of natural healthy shape and size—and perforation very frequently occurs in such—its detection is easy, and if correct, and the conditions otherwise present which make deduction logical, is pathognomonic of perforation of an air-containing viscus.

Of course, it counts for nothing against perforation if the dullness of the liver is normally present. It all depends upon whether air escapes, how much and where it lodges. Usually, when the sign has been present, the practitioner may await the operation with perfect confidence. As soon as the surgeon opens the peritoneum gas audibly escapes. But in trusting to it, there must be no tympanites whatever, and there is not, in the early stages of any perforation I have ever seen. The sign may be neglected entirely; perhaps it is safer to do so in many cases. Still, it is a classical sign, and its proper significance may as well be justly stated.

I see it is twenty-five years since I first was interested in this subject, and then, as now, no little confusion surrounded its proper importance.—I am, etc.,

Glasgow, May 9th. R. O. ADAMSON, M.D.

THE SITE OF OPERATION FOR EMPYEMA.

SIR,—I have followed with interest the discussion in your columns on "the site of operation for empyema." As during the war I was wounded in the chest, and subsequently operated on for empyema, my personal experience may be of some little value. The site chosen was in the scapular line, and I can vouch for the discomfort and even actual pain caused by the pressure of the tube when lying back in bed. I usually tried to lie on the sound side, and I know many medical men encourage this, as it is believed to cause expansion of the damaged lung. Be that as it may, it caused me considerable breathlessness and cough. Pocketing occurred three times, and it was over three months before the drainage tube was finally dispensed with.

Since return to civil life I have operated on a number of cases of empyema, and, bearing my own personal experience in mind, have always made the incision anterior to the posterior axillary line. The patients were comfortable and able to lie at ease. I have seen no pocketing and the lung appeared to expand well.

As Mr. Pearson says the particular point chosen does not matter from the point of view of drainage, may my own personal experience be counted as argument in favour of drainage anterior to the posterior axillary line? I have, of course, not forgotten that there are such things as local encysted empyemata.—I am, etc.,

May 16th. F.R.C.S.I.

DIFFERENTIAL STAINING OF CARCINOMATA.

SIR,—Dr. Shera accuses me of haste and inexperience. I am sorry, as it does not seem to me to serve any useful purpose in controversy. In common with many laboratory workers, I have used a method indistinguishable from his

for considerably longer than his period of two years. *Pace* Dr. Shera, I was teaching histology before he was qualified, and am still in active practice as a pathologist, and I am quite content to leave the verdict to others of similar experience.

My real point, however, was not controversial, but to suggest that others without Dr. Shera's experience might be led to rely on a "differential" staining reaction rather than on the morphology of the cell itself.—I am, etc.,

London, W.C., May 13th. A. KNYVETT GORDON, M.B.

Obituary.

SIR ROBERT WILLIAM JACKSON, C.B.,

Deputy Surgeon-General.

SIR ROBERT WILLIAM JACKSON, C.B., died at Sandymount, Dublin, on May 13th, aged 93. He was born at Edenderry, King's County, on August 11th, 1827, and was educated in Dublin. He took the L.R.C.S.I. in 1851, the L.K.Q.C.P. in 1859 and the F.R.C.S.I. in 1862. Entering the army as assistant-surgeon in the 90th Foot (Scottish Rifles) on May 26th, 1854, he attained the rank of brigade-surgeon on May 5th, 1881, and retired with a step of honorary rank on December 16th, 1882. During the regimental times he also served in the 84th Foot (York and Lancaster), 86th Foot (Royal Irish Rifles), 100th Foot (Leinster Regiment, Royal Canadians), and for several spells on the staff, and from January, 1862, to January, 1863, was on half pay.

He had a very long record of war service, first, in the Crimea (1854–55), where he was present at the siege and fall of Sevastopol and received the medal with clasp and the Turkish medal. In the Indian Mutiny (1857–1858) he was at the first relief of Lucknow, at the battle of Cawnpur, the defence of the Alambagh, the final assault and capture of Lucknow, the capture of Kalpi and the operations in Oudh; he received the medal with three clasps. He served also in the Ashanti war (1873–74), being present at the action of Essaman and relief of Abrakrampra, the battles of Amoaful and Ordahsu, and the capture of Coomassie. He was mentioned in dispatches, and was awarded the medal with clasp and the C.B. In South Africa, in 1879, he was present at the operations against Sekukuni, and was again mentioned in dispatches. He was in Egypt in 1882, shared in the battle of Tel-el-Kebir, was mentioned in dispatches, and received the medal with clasp, the Khedive's bronze star, Medjidie third class and knighthood.

After his retirement he settled at Sandymount, near Dublin, where for many years he took great interest in local affairs. In 1860 he married the daughter of Mr. John Jones Simpson, who died in 1888. He married again, in 1891, the daughter of Mr. Robert P. Daye. He had one daughter and three sons, one of whom is Major R. W. H. Jackson, R.A.M.C. (retired).

THE LATE DR. C. A. GREAVES.—Dr. W. F. Dearden writes: By the passing of Dr. C. A. Greaves of Derby (of whom an obituary notice appeared in the JOURNAL of May 7th) the ranks of certifying factory surgeons have lost a truly great personality. His is an excellent example of how well part-time departmental service can be carried out without neglect of other professional obligations. He was a factory surgeon during the long period of fifty-two years—a unique record in itself—and it is well known among his colleagues how conscientiously and thoroughly he fulfilled the duties of his office. He was very exact and painstaking, and during the whole of this period kept a careful account of his work in factories. This regard for note-taking proved to be the salvation of the medical branch of the factory service when, in 1891, the Government sought to abolish the examinations for certificates of fitness, on the ground that certifying surgeons rarely, if ever, rejected anyone for medical reasons. Dr. Greaves was able to produce particulars of over 2,000 rejections on purely medical grounds, occurring during his twenty-three years' service, and the obnoxious clause in the bill did not survive the Committee stage. It is for this particular reason that his name will always be revered by those of his contemporaries who remember this signal service. It was not, however, his only good work on behalf of certifying surgeons. He was a firm believer in the advantages accruing to both employers and workpeople by the exercise of medical supervision over the youthful worker, and his views were well expressed in an address contributed to the Section of Industrial Hygiene at the Manchester meeting of the British Medical Association in 1902. In the course of his remarks Dr. Greaves clearly laid down the objects to be arrived at by the surgeon in making his examination, and his classification is quoted at length in the official memorandum issued by the Home Office for the guidance of certifying surgeons. He utilized the same occasion to make some very caustic criticisms of the sixpenny fee paid for these examinations, and was very definite in his opinion that "to accept three-quarters of a chimney sweep's minimum as a proper equivalent for the performance of a medical function is surely most degrading." His method of avoiding the degradation was the establishment of a collecting-box into which the "metallic affront" was dropped for the benefit of the Children's Hospital. He resigned his appointment only twelve months ago.

COLONEL ISAAC HOYSTED, one of the rapidly dwindling list of Mutiny veterans, died suddenly at Sidcup, Kent, on May 3rd, aged 88. He was the son of the late John Hoysted, of Walterstone, county Kildare; he was educated in Dublin and at King's College, London, and took the L.R.C.S.I. in 1855; he became L.K.Q.C.P.I. in 1864, and F.R.C.S.I. in 1865. He served in the militia from May, 1855, to March, 1858, and entered the army as assistant-surgeon on March 10th, 1858, becoming surgeon-major on April 1st, 1873, and retiring with a step of honorary rank on June 20th, 1887. In the regimental days he served successively in the 80th Foot (South Staffords), 37th Foot (Hampshire), 8th Foot (King's Liverpool), 13th Foot (Prince Albert's Somerset Light Infantry), and 9th Foot (Norfolks). During the Indian Mutiny he acted as extra A.D.C. to Sir Henry Havelock at the relief of Lucknow, and in the Shahabad campaign, receiving the medal, and in the Burmese compaign of 1885–87, gaining the medal with a clasp. There seem to be now living only four survivors of the Mutiny in the A.M.D. and two in the I.M.S. In his earlier days he was a man of fine physique, great strength and activity, and a fearless rider. In 1872 he married the only daughter of Mr. James Colthurst of Cork, who died in 1879, over forty years ago. He leaves four daughters. He was a nephew of Colonel Frederick William Hoysted, who served in the American War of Independence, commanded the 59th Foot in the Peninsular, and fought at Waterloo; and a brother of the late Surgeon-General Thomas Hoysted.

DR. RICHARD WILLIAM BROGDEN died at Folkestone on May 4th, aged 67. He was born at Tockwith, near York, the son of Mr. Robert Brogden, and received his medical education at Guy's Hospital. He took the diplomas of M.R.C.S.Eng. and L.R.C.P.Lond. in 1884, and graduated M.B., B.S.Lond. in 1885. He succeeded Dr. G. Hammond in practice at Ipswich about thirty-five years ago, and was elected honorary surgeon to the East Suffolk and Ipswich Hospital in 1887, a post which he retained until he left Ipswich a year ago. He was a member of the South Suffolk Division of the British Medical Association until he removed to Folkestone. He lost his only son in the war; his wife and four daughters survive him.

THE death occurred, on May 8th, of Dr. WILLIAM HENRY ELLIS, of Bradford, at the age of 76. He was educated at Cambridge University and St. Bartholomew's Hospital, and took the diplomas of M.R.C.S.Eng. and L.S.A. in 1866. Soon afterwards he commenced practice at Shipley and remained there until his retirement in 1910. He was for many years consulting surgeon to the Saltaire Hospital, and had served as chairman of the governors of the Salt Trust and a member of the Shipley School Board. He was a member of the West Riding Bench for thirty-one years and for ten years was its chairman. He leaves four sons and two daughters, his youngest son, Captain T. M. Ellis of the West Riding Regiment, having been killed in Flanders early in 1915.

DR. LAWRENCE RAMSAY THOMSON died at Musselburgh, Midlothian, on April 2nd, aged 39. He was the elder son of Dr. A. D. R. Thomson, of Musselburgh, with whom he was working in partnership. He was educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1911. He joined the R.A.M.C. as a temporary lieutenant on September 27th, 1915, and was promoted to captain after a year's service. He served at Malta during the war.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on May 7th the following medical degrees were conferred:

M.D.—A. T. Edwards.
M.B., B.CH.—J. B. Hunter, W. E. H. Banks, H. Gainsborough.
M.B.—H. A. Whyte-Venables.
B.CH.—W. N. Goldschmidt.

ERRATUM.—In the list of degrees printed in the JOURNAL of May 14th, p. 722, there was an error. The degree conferred on H. B. Dodwell was that of *B.Ch.*, not M.Ch.

UNIVERSITY OF MANCHESTER.

THE Council has appointed Dr. Albert Ramsbottom, F.R.C.P., physician to the Manchester Royal Infirmary and lecturer on clinical medicine in the Victoria University, to be Professor of Clinical Medicine.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THREE public lectures on "The history of chemistry in the nineteenth century," will be delivered in the Chemistry Theatre, by Sir William Tilden, F.R.S., on Fridays, May 27th, June 3rd and 10th, at 5 p.m. The chair at the first lecture will be taken by Professor J. Norman Collie, F.R.S.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN Extraordinary Comitia of the Royal College of Physicians of London was held on Thursday, May 12th, at 5 p.m., the chair being occupied by Sir Norman Moore, Bt., the President.

The following gentlemen, who were elected to the Fellowship at the last meeting, were admitted as Fellows:

C. O. Hawthorne, M.D., C. H. Melland, M.D., J. G. Emanuel, M.D., A. E. Barnes, M.B., J. P. Hedley, M.B., J. A. Torrens, M.D., A. J. Clark, M.C., M.D., A. Feiling, M.D., R. H. Steen, M.D., C. M. Wilson, M.D., G. E. S. Ward, M.D.

Diplomas in public health were granted jointly with the Royal College of Surgeons to twenty-three candidates who had passed the required examinations.

Communications were received from (1) the President and Honorary Secretaries of the Section of Laryngology, Royal Society of Medicine, dated April 8th, 1921, concerning teaching and examination in the subject of oto-rhino-laryngology, and the institution of a special diploma in that subject; (2) the Honorary Secretaries of the Sections of Laryngology and Otology, Royal Society of Medicine, dated April 30th, 1921, reporting a resolution passed by these sections on the subject mentioned above. These were referred to the Committee of Management for report.

A map illustrating the travels of Harvey in 1636 was received from Sir D'Arcy Power, K.B.E. The thanks of the College were accorded to him for this gift.

The following report, dated April 19th, was received from the Committee of Management:

The Committee of Management have received from Sir Charles Ballance, K.C.M.G., C.B., M.V.O., the visitor appointed by the Royal Colleges to inspect the examinations of the Egyptian Medical School and Hospital, Cairo, a full and interesting report on the examinations and on the teaching in the Medical School and Hospital. In accordance with the authority conferred on them by the Royal Colleges, the Committee have communicated with H.E the Minister of Education and H.E. the Minister of Public Health with regard to various matters arising out of the report. The Committee are of opinion that the examinations and course of education justify the Royal Colleges in continuing their recognition of the School. The Committee suggest that the Royal Colleges should express to Sir Charles Ballance their appreciation of his valuable services as their visitor.

The thanks of the College were accorded to Sir Charles Ballance.

The Registrar proposed an addendum to the regulation attached to By-law CXVII (which prescribes the times of the several parts of the membership examination), as follows:

"Provided that when the number of candidates renders it desirable the President and Censors may fix such additional times for the clinical and oral examinations as may be required for the proper conduct of the examination."

This was resolved accordingly.

The President then dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on May 12th, when Sir Anthony Bowlby, President, was in the chair.

Issue of Diplomas.—Diplomas of Membership were granted to the 103 candidates found qualified at the recent examinations; the names were published in the report of the proceedings of the comitia of the Royal College of Physicians of London (May 7th, p. 690). Diplomas in public health were granted, jointly with the College of Physicians, to 23 candidates. Diplomas in tropical medicine were granted, jointly with the College of Physicians, to 21 candidates.

Vacancies on the Court of Examiners.—The President reported that the terms of office of Mr. R. Lawford Knaggs and Mr. J. Hutchinson as members of the Court of Examiners would expire on June 8th next, and that the vacancies thus occasioned would be filled up at the ordinary council on June 9th.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT a meeting of the President and Fellows of the Royal College of Physicians of Ireland, held in the College Hall, Kildare Street, Dublin, on May 6th, Dr. Harold Pringle, King's Professor of the Institutes of Medicine in the School of Physic, Ireland, was admitted a Fellow of the College, and Dr. Samuel Denis de Vos, of Ceylon, was admitted a Licentiate in Midwifery.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

D.P.H.—T. Pullar, Janet B. Higgins. *Part I:* Ellen D. Anderson, W. Cunningham, R. J. Peters, A. Davidson, Mary C. Walker, Marguerite L. Sclanders, W. H. Wallace, W. D. MacKinnon, E. M. E. Cumming, A. M. Davidson, C. L. Miller, D. Heard, D. Fyfe, W. McKendrick, Helena E. Barrett, S. J. Henderson, J. Frew.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examination indicated:

FINAL PROFESSIONAL.—Mary Boland, Lucretia H. H. Byrne, T. Cooney, B. J. Coyne, J. A. Cusack, Edith M. L. Dodd, A. C. Esmonde, P. Gaffney, S. A. Gailey, J. W. E. Graham, S. J. Halpin, T. J. Kerr, J. J. McHenry, P. Moylan, J. J. O'Sullivan, J. Tehan (honours).

Medical News.

THE Senate of the University of Glasgow has resolved to confer the honorary degree of Doctor of Laws (LL.D.) upon Dr. Freeland Fergus, President of the Royal Faculty of Physicians and Surgeons of Glasgow.

DR. J. F. GASKELL, physician to Addenbrooke's Hospital, Cambridge, has been appointed honorary pathologist to the hospital in succession to Dr. Aldren Wright.

A MEETING of the School Medical Service Group of the Society of Medical Officers of Health will be held on Saturday, May 28th, at 2.15 p.m., at the School Clinic, Great Charles Street, Birmingham. Members of the School Medical Service who are not members of the society will be welcome as visitors. The honorary secretary of the group is Dr. A. Ashkenny, Soho Hall, Birmingham.

A SPECIAL course of ten lectures on advanced surgery will be given in the Surgical Unit Lecture Theatre of the London Hospital, on Tuesdays and Thursdays, at 4.15 p.m., beginning on June 7th. The course is open to post-graduates and senior students.

PROFESSOR C. S. SHERRINGTON, President of the Royal Society, and Dr. H. K. Anderson, F.R.S., Master of Gonville and Caius College, have been elected members of Athenaeum Club under Rule 2, which empowers the annual election by the committee of a certain number of persons "of distinguished eminence in science, literature, the arts, or for public service."

THE ordinary quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland will be held at the Maudsley Hospital, Denmark Hill, S.E., under the presidency of Dr. W. F. Menzies, on Tuesday, June 7th. Sir Frederick Mott, F.R.S., will deliver the second Maudsley lecture at 4.30 p.m.

ON May 25th Dr. C. M. Wilson will read a paper before the Royal Society of Arts on "Some effects of the war on industrial unrest," and on May 30th Sir Kenneth Goadby will read a paper on "Industrial disease and immunity." Each paper will be given at 8 p.m. at the house of the society, John Street, Adelphi, W.C. 2, and discussions will follow.

TWENTY THOUSAND cases of cholera, 9,000 of which were fatal, have recently been certified in Corea.

THE Japanese Government have arranged that the principal trains leaving Tokio shall carry a medical officer.

THE Soviet Tartar Republic at Kasan has formed a medical institute with a special section for the hygiene of labour.

THE Council of British Ophthalmologists presented its annual report to a meeting held on May 7th at the house of the Royal Society of Medicine. It recorded that at the beginning of the session 1920–21 Mr. J. B. Lawford was elected president in place of Sir Anderson Critchett, who filled that office during the first two years of the Council's work; Sir George Berry and Mr. E. Treacher Collins were elected vice-presidents, Mr. J. Herbert Fisher honorary treasurer, and Mr. Leslie Paton honorary secretary. The report notes with gratification that special examinations in ophthalmology have recently been established in connexion with two surgical degrees—the M.S.Lond. (Ophthalmology) and M.S.Vict.Univ.,Manch. (Ophthalmology)—and the diploma in ophthalmic medicine and surgery of the English Conjoint Board; further, a committee of the Royal College of Surgeons of England is considering the question of creating a higher form of diploma in connexion with the Fellowship of the College. During the past session the council issued a report on the need for institutional treatment of children with contagious eye disease. This was forwarded to the Ministry of Health and a deputation was received by Sir George Newman on behalf of the Minister. In consequence of this, beds are now available at the Metropolitan Asylums Board ophthalmia school at Swanley for London County Council school children suffering from ophthalmia or other contagious diseases of the eye. The Council has had under consideration the question of sight-testing by opticians, and has prepared a report on the subject. The Council has also prepared a report on the notation of cylinder axes, and still has under consideration the question of the standardization of test types. A committee appointed to consider the Report of the Consultative Council of the Ministry of Health, in so far as it is likely to affect ophthalmic surgeons, has gathered a considerable amount of information as to the work done by ophthalmic surgeons for various public and state authorities. Another committee is considering the question of examination, treatment, and report of cases referred by public authorities to ophthalmic surgeons in voluntary hospitals.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*: telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*: telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"PENSIONS" asks if any cases of "double appendix" are recorded. Operating recently on a case after removal of what appeared to be a normal appendix, on turning the caecum round another appendix came into view, with a definite meso-appendix chronically inflamed and with a very diminished lumen. Unfortunately no histological examination was made. The second "appendix" was two inches long, and did not seem like an intestinal diverticulum.

INCOME TAX.

"N. P." is a whole-time medical officer of the Ministry of Pensions, and has been refused a deduction by the local inspector for the expense of his subscriptions to the Association and of purchases of books to maintain his standard of medical knowledge.

*** In our opinion he is entitled to a reasonable deduction for such expenses as being incurred wholly, exclusively, and necessarily in the performance of his duties; they represent the maintenance cost of his professional equipment. His method of procedure is by way of appeal to the local Commissioners through notice, given to the local inspector, of objection to the assessment made on his salary.

"PUZZLED" is employed in a whole-time capacity under the Ministry of Pensions. He lives some distance from London, and has to travel up daily for his work. He asks if he is entitled to deduct the cost of a season ticket.

*** No—unless he also has work for the Ministry of Pensions which must be done at the place of residence. A case in the High Court decided some years ago that the expense of travelling *to* the place of employment is not incurred *in* performing the duties of the office.

"H. D." sold his pre-war 8–10 h.p. Darracq car for £30 and his motor cycle for £20, and on resuming civilian work purchased a 11.9 h.p. Phoenix car for £450. He inquires whether he can charge the sum of £400—that is, £450 less the £30 and £20—as motoring expenses.

*** In our opinion, yes.

LETTERS, NOTES, ETC.

THE Royal Insurance Company has issued a waistcoat pocket edition of the *Rules of Golf*, which includes recent important changes in the rules and interesting notes on the question of the size and weight of the ball. There is a comprehensive index, and many medical golfers may like to have the booklet, which is obtainable from any of the company's offices.

THE PREVENTION OF URETHRAL STRICTURE.

R. M. W. BROWDY (London, W.) writes: I read with interest in your issue of May 14th the article by Mr. Giuseppi on the treatment of urethral stricture. He deplores the "paucity of papers on the subject," and also that "so little has been done to modernize its treatment." I cordially agree, and carefully scanned the paper to find if any mention was made regarding preventive treatment. It is deplorable that so little attention should be paid to this point. The majority of cases are due to gonorrhoea, and badly treated gonorrhoea. If medical men would pay more serious attention to the treatment of acute gonorrhoea and not rely upon cessation of discharge or the examination of a smear as a criterion of cure and freedom from organic change, but would carefully examine the urethra for patches of infiltration in its early stage and thoroughly dilate with sounds and expanding dilators, stricture would be a relic of the past.

HERPES AND VARICELLA.

DR. O. HILTON (Northwood, Middlesex) writes: A., a carpenter, and B., a painter, were working at the same job. Each developed shingles on his right arm. A. first felt pain on April 22nd; B. first felt itching on April 25th. A. discovered a herptic rash on April 24th, and came to see me on April 27th; B. came to me with a well-developed eruption on May 2nd. On May 11th, seventeen days after A. noticed his spots, an eruption was seen on his youngest child, and to-day, May 13th, I found the child suffering from a quite typical attack of chicken-pox.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 23, 24, 25, 28, 29, and 30 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 26, 27, and 31.

THE appointments of certifying factory surgeon at Athlone (Westmeath) and Brecon (Brecon) are vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
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Whole single column (three columns to page)	7	10	0
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Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.